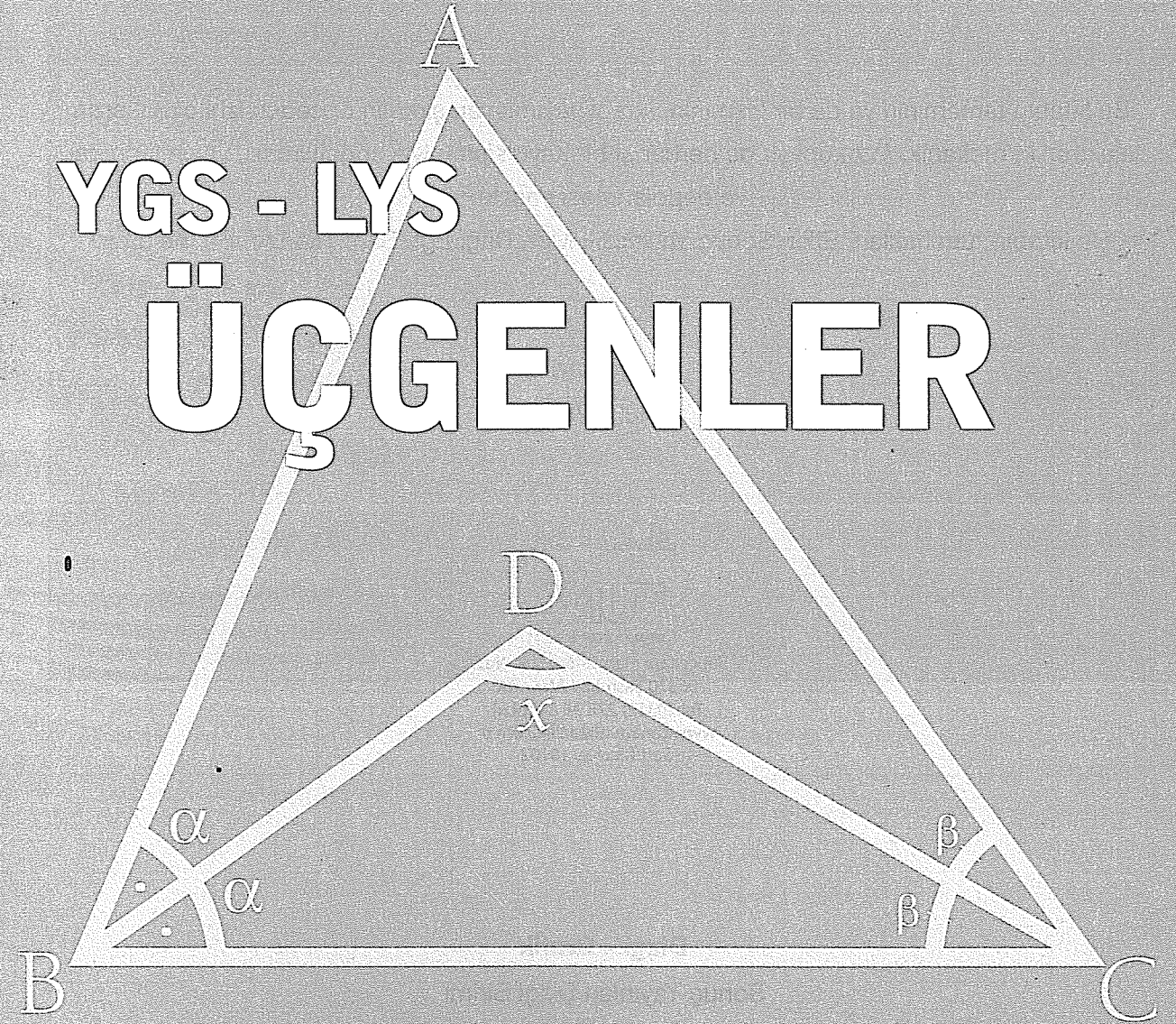


YGS - LYS

ÜÇGENLER



SONUÇ YAYINLARI

YGS – LYS Geometri
ÜÇGENLER

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Eylül – 2012

Baskı – Cilt

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Açı Ölçü Birimleri - I

Örnek

- $12^{\circ} 40' 17''$ kaç saniyedir?
- $7423''$ lik açının derece, dakika, saniye türünden eşiti kaçtır?

Açı ölçüsü birimi olarak genelde derece kullanılır.

Bir ışının başlangıç noktası etrafında bir tur döndürülmesi ile elde edilen açı 360° dir.

Çözüm

Derecenin Alt Birimleri

$$1^{\circ} = 60' \text{ (dakika)} \quad 1' = 60'' \text{ (saniye)} \quad 1^{\circ} = 3600''$$

- $1^{\circ} = 3600''$ ise $12^{\circ} = 12 \cdot 3600'' = 43200''$ ve $1' = 60''$ ise $40' = 40 \cdot 60'' = 2400''$ dür.

$$\text{Buradan } 12^{\circ} 40' 17'' = 43200'' + 2400'' + 17'' = 45617'' \text{ dir.}$$

$$\begin{array}{r|l} 7423 & 3600 \\ \hline 7200 & 2 \\ \hline 223 & \end{array} \quad \begin{array}{r|l} 223 & 60 \\ \hline 180 & 3 \\ \hline 43 & \end{array}$$

Buna göre, $7423'' = 2^{\circ} 3' 43''$ olur.

TEST - 1

- 35° lik açı kaç dakikadır?
A) 2100 B) 2200 C) 2400
D) 2600 E) 3000

- 22° lik açı kaç saniyedir?
A) 78000 B) 78600 C) 79200
D) 79800 E) 80000

- $14^{\circ} 53'$ lik açı kaç dakikadır?
A) 840 B) 875 C) 893
D) 910 E) 913

- $10^{\circ} 40' 17''$ lik açı kaç saniyedir?
A) 35600 B) 35610 C) 37617
D) 38417 E) 78637

- $8273''$ lik açının derece, dakika, saniye türünden eşiti aşağıdakilerden hangisidir?
A) $2^{\circ} 17' 20''$ B) $2^{\circ} 17' 53''$
C) $2^{\circ} 18' 20''$ D) $2^{\circ} 19' 20''$
E) $2^{\circ} 19' 53''$

- $12364''$ lik açının derece, dakika, saniye türünden eşiti aşağıdakilerden hangisidir?
A) $3^{\circ} 22' 14''$ B) $3^{\circ} 24' 4''$
C) $3^{\circ} 24' 44''$ D) $3^{\circ} 25' 44''$
E) $3^{\circ} 26' 4''$

1. A 2. C 3. C 4. D 5. B 6. E

Açı Ölçü Birimleri - II

Örnek

$$m(\widehat{A}) = 24^\circ 14' 38''$$

$$m(\widehat{B}) = 10^\circ 50' 32'' \text{ ise,}$$

a. $m(\widehat{A}) + m(\widehat{B})$

b. $2m(\widehat{A}) - 3m(\widehat{B})$

işlemlerinin sonucunu bulalım.



Çözüm

$$\begin{array}{rcl} \text{a.} & 24^\circ 14' 38'' & (72'' = 60'' + 12'' = 1' + 12'') \\ & 10^\circ 50' 34'' & 1' \text{ yi } 64' \text{ ye eklersek } 65' \text{ olur.} \\ + & \hline & 34^\circ 64' 72'' \quad (65' = 60' + 5' = 1^\circ + 5') \end{array}$$

1° yi 34° eklersek 35° olur.

sonuç olarak 35° 5' 12" olarak bulunur.

b. $2m(\widehat{A}) = 2(24^\circ 14' 38'') = 48^\circ 28' 76'' = 48^\circ 29' 16''$

$3m(\widehat{B}) = 3(10^\circ 50' 34'') = 30^\circ 150' 102'' = 32^\circ 31' 42''$

$$\begin{array}{rcl} & 48^\circ 29' 16'' & \left(\begin{array}{l} 16'' \text{ den } 42'' \text{ çıkmaz!} \\ 29' \text{ dan } 1' = 60'' \text{ alıp} \\ 16'' \text{ ilave edelim} \end{array} \right) \\ - & 32^\circ 31' 42'' & \\ \hline & 15^\circ 57' 34'' & \end{array}$$

TEST - 2

1. $m(\widehat{A}) = 24^\circ 16' 30''$

$m(\widehat{B}) = 7^\circ 24' 25''$

olduğuna göre, $m(\widehat{A}) + m(\widehat{B})$ işleminin sonucu kaçtır?

- A) $30^\circ 25' 35''$ B) $31^\circ 20' 5''$ C) $31^\circ 39' 50''$
D) $31^\circ 40' 55''$ E) $31^\circ 41' 25''$

2. $m(\widehat{A}) = 20^\circ 14' 7''$

$m(\widehat{B}) = 45^\circ 54' 13''$

olduğuna göre, $2m(\widehat{A}) + m(\widehat{B})$ işleminin sonucu kaçtır?

- A) $86^\circ 22' 27''$ B) $88^\circ 22' 50''$ C) $86^\circ 23' 20''$
D) $86^\circ 24' 20''$ E) $86^\circ 24' 50''$

3. $m(\widehat{A}) = 20^\circ 13' 10''$

$m(\widehat{B}) = 8^\circ 5' 40''$

olduğuna göre, $m(\widehat{A}) - m(\widehat{B})$ işleminin sonucu kaçtır?

- A) $11^\circ 10' 20''$ B) $12^\circ 7' 30''$ C) $12^\circ 10' 20''$
D) $13^\circ 7' 30''$ E) $15^\circ 44' 50''$

4. $m(\widehat{A}) = 10^\circ 15' 30''$

$m(\widehat{B}) = 2^\circ 15' 20''$

olduğuna göre, $m(\widehat{A}) - 2m(\widehat{B})$ işleminin sonucu kaçtır?

- A) $7^\circ 44' 20''$ B) $7^\circ 40' 20''$ C) $6^\circ 44' 50''$
D) $6^\circ 40' 50''$ E) $5^\circ 44' 50''$

5. $m(\widehat{A}) = 40^\circ 14' 35''$

$m(\widehat{B}) = 11^\circ 23' 15''$

olduğuna göre, $3m(\widehat{A}) - 4m(\widehat{B})$ işleminin sonucu kaçtır?

- A) $76^\circ 35' 40''$ B) $75^\circ 10' 45''$
C) $75^\circ 10' 40''$ D) $73^\circ 35' 45''$
E) $70^\circ 45' 30''$

6. $m(\widehat{A}) = 35^\circ 14' 24''$

olduğuna göre, $\frac{m(\widehat{A})}{3}$ işleminin sonucu kaçtır?

- A) $13^\circ 14' 44''$ B) $12^\circ 44' 8''$ C) $12^\circ 4' 28''$
D) $11^\circ 44' 48''$ E) $11^\circ 24' 8''$

1. D 2. A 3. B 4. E 5. B 6. D

Dar - Geniş Açı

Örnek

$\widehat{A}$ geniş açı olmak üzere,

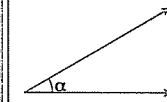
$$m(\widehat{A}) + m(\widehat{B}) = 240^\circ$$

eşitliğini sağlayan $m(\widehat{B})$ nin en küçük tamsayı değeri kaç derecedir?

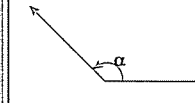
- A) 61 B) 72 C) 84 D) 130 E) 149



Çözüm



Dar açı: Ölçüsü 0° ile 90° arasında olan açılara denir.



Geniş Açı: Ölçüsü 90° ile 180° arasında olan açılara denir.

$$m(\widehat{A}) + m(\widehat{B}) = 240^\circ \Rightarrow m(\widehat{A}) = 240^\circ - m(\widehat{B})$$

A açısı geniş açı olduğundan $90^\circ < m(\widehat{A}) < 180^\circ$

$$\Rightarrow 90^\circ < 240^\circ - m(\widehat{B}) < 180^\circ$$

$$\Rightarrow -150^\circ < -m(\widehat{B}) < -60^\circ$$

$$\Rightarrow 60^\circ < m(\widehat{B}) < 150^\circ$$

$\Rightarrow m(\widehat{B})$ nin en küçük tamsayı değeri 61° dir.

Cevap A

TEST - 3

1. I. 92° II. 86°
III. 105° IV. 10°
V. 130°

Yukarıda verilen açılardan kaç tanesi dar açıdır?

- A) 1 B) 2 C) 3 D) 4 E) 5

2. I. 45° II. 95°
III. 120° IV. 175°
V. 210°

Yukarıda verilen açılardan kaç tanesi geniş açıdır?

- A) 1 B) 2 C) 3 D) 4 E) 5

3. $\widehat{A}$ dar açı, $\widehat{B}$ geniş açı olmak üzere,
 $m(\widehat{A}) + m(\widehat{B})$ toplamının alabileceği en küçük tamsayı değeri kaç derecedir?

- A) 90 B) 91 C) 179 D) 180 E) 181

4. $\widehat{A}$ dar açı olmak üzere,
 $m(\widehat{A}) + m(\widehat{B}) = 190^\circ$

eşitliğini sağlayan $m(\widehat{B})$ nin en küçük tamsayı değeri kaç derecedir?

- A) 100 B) 101 C) 102 D) 103 E) 104

5. $\widehat{B}$ geniş açı olmak üzere,
 $m(\widehat{A}) + m(\widehat{B}) = 240^\circ$

eşitliğini sağlayan $m(\widehat{A})$ nin en büyük tamsayı değeri kaç derecedir?

- A) 145 B) 147 C) 148 D) 149 E) 150

6. $\widehat{A}$ geniş açı, $\widehat{B}$ dar açı olmak üzere,
 $m(\widehat{A}) - m(\widehat{B})$ farkının en büyük tamsayı değeri kaçtır?

- A) 90 B) 91 C) 179 D) 180 E) 181

1. B 2. C 3. B 4. B 5. D 6. C

Dik - Doğru - Tam Açı

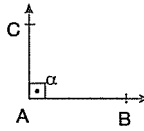
Örnek

$\widehat{A}$ dik açı, $\widehat{B}$ tam açı, $\widehat{C}$ doğru açı olmak üzere,
 $m(\widehat{B}) - 3m(\widehat{A}) + m(\widehat{C})$
 kaç derecedir?

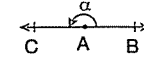
- A) 90 B) 180 C) 270 D) 360 E) 450



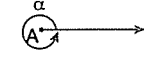
Çözüm



Dik açı: Ölçüsü 90° olan açılara denir.
 $\alpha = 90^\circ$



Doğru Açı: Ölçüsü 180° olan açılara denir.
 $\alpha = 180^\circ$



Tam Açı: Ölçüsü 360° olan açılara denir.
 $\alpha = 360^\circ$

$$\widehat{A} \text{ dik açı} \Rightarrow m(\widehat{A}) = 90^\circ$$

$$\widehat{B} \text{ tam açı} \Rightarrow m(\widehat{B}) = 360^\circ$$

$$\widehat{C} \text{ doğru açı} \Rightarrow m(\widehat{C}) = 180^\circ$$

$$m(\widehat{B}) - 3m(\widehat{A}) + m(\widehat{C}) = 360^\circ - 270^\circ + 180^\circ = 270^\circ \text{ olur.}$$

Cevap C

TEST - 4

1. $\widehat{A}$ dik açı, $\widehat{B}$ doğru açı, $\widehat{C}$ tam açı olmak üzere,
 $m(\widehat{C}) - 2m(\widehat{A}) + m(\widehat{B})$
 ifadesinin eşiti aşağıdakilerden hangisidir?

- A) 45 B) 90 C) 180 D) 270 E) 360

2. $\widehat{A}$ dik açı, $\widehat{B}$ doğru açı, $\widehat{C}$ tam açı olmak üzere,
 $m(\widehat{B}) + m(\widehat{C})$ toplamının $m(\widehat{A})$ türünden eşiti
 aşağıdakilerden hangisidir?

- A) $4m(\widehat{A})$ B) $5m(\widehat{A})$ C) $6m(\widehat{A})$
 D) $7m(\widehat{A})$ E) $8m(\widehat{A})$

3. $\widehat{A}$ dik açı, $\widehat{B}$ doğru açı, $\widehat{C}$ tam açı olmak üzere,
 $\frac{m(\widehat{A}) + m(\widehat{B}) + m(\widehat{C})}{3}$
 ifadesinin eşiti aşağıdakilerden hangisidir?

- A) 180 B) 190 C) 200 D) 210 E) 220

4. $\widehat{K}$ dik açı, $\widehat{D}$ doğru açı, $\widehat{T}$ tam açı olmak üzere,
 aşağıdaki eşitliklerden hangisi yanlıştır?

- A) $2m(\widehat{K}) = m(\widehat{D})$
 B) $m(\widehat{T}) = \frac{4(m(\widehat{D}) + m(\widehat{K}))}{3}$
 C) $\widehat{T} - \widehat{D} = 2\widehat{K}$
 D) $\widehat{T} - 2\widehat{K} = \widehat{D}$
 E) $\frac{m(\widehat{T})}{m(\widehat{K})} = 2$

1. E 2. C 3. D 4. E

Tümle Açı

Örnek

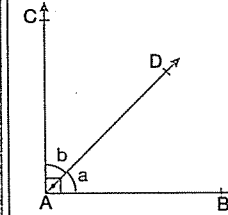
Tümleler iki açıdan birinin ölçüsü, diğerinin ölçüsünün 2 katından 24° fazladır.

Buna göre, küçük açının ölçüsü kaç derecedir?

- A) 22 B) 23 C) 24 D) 25 E) 26



Çözüm



Ölçüleri toplamı 90° olan iki açıya tümle açıları denir.

$$a + b = 90^\circ$$

Tümleler iki açıdan birinin ölçüsü x olsun.

Diğeri $2x + 24^\circ$ olur.

$$x + 2x + 24^\circ = 90^\circ \Rightarrow 3x + 24^\circ = 90^\circ$$

$$\Rightarrow 3x = 66^\circ$$

$$\Rightarrow x = 22^\circ \text{ olur.}$$

Cevap A

TEST - 5

1. Tümlelerinin ölçüsü 56° olan açının ölçüsü kaç derecedir?

- A) 24 B) 26 C) 30 D) 34 E) 36

2. Bir açının ölçüsü, tümlelerinin ölçüsünden 20° fazla ise, bu açının ölçüsü kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

3. Tümleler iki açıdan birinin ölçüsü, diğerinin ölçüsünün 5 katına eşit ise, büyük olan açı kaç derecedir?

- A) 75 B) 65 C) 60 D) 55 E) 50

4. Kendi ölçüsü ile tümleyeninin yarısının ölçüsü toplamı 60° olan açının ölçüsü kaç derecedir?

- A) 25 B) 30 C) 40 D) 45 E) 50

5. Tümleler iki açıdan birinin ölçüsü diğerinin ölçüsünün 3 katından 10° eksik ise, büyük olan açının ölçüsü kaç derecedir?

- A) 25 B) 45 C) 65 D) 75 E) 85

6. Tümleler iki açının ölçüleri farkı 20° ise büyük olan açı kaç derecedir?

- A) 45 B) 50 C) 55 D) 60 E) 65

1. D 2. E 3. A 4. B 5. C 6. C

Bütünler Açısı

Örnek

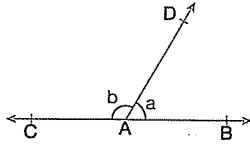
Bütünler iki açıdan birinin ölçüsü diğerinin ölçüsünün 3 katından 20° eksiktir.

Buna göre, büyük açının ölçüsü kaç derecedir?

- A) 100 B) 110 C) 120 D) 130 E) 140



Çözüm



Ölçüleri toplamı 180° olan iki açıya bütünler açılar denir.

$$a + b = 180^\circ$$

Bütünler iki açıdan birinin ölçüsü x olsun.

Diğeri $3x - 20^\circ$ olur.

$$x + 3x - 20^\circ = 180 \Rightarrow 4x - 20^\circ = 180^\circ$$

$$\Rightarrow 4x = 200^\circ$$

$$\Rightarrow x = 50^\circ$$

Büyük açı, $180^\circ - 50^\circ = 130^\circ$ olur.

Cevap D

TEST - 6

1. Tümleyeni ile bütünleyeninin ölçüleri toplamı 240° olan açının ölçüsü kaç derecedir?

- A) 15 B) 20 C) 25 D) 35 E) 45

2. Bütünleyeninin ölçüsünün yarısı, tümleyeninin ölçüsünün 10° fazlasına eşit olan, açının ölçüsü kaç derecedir?

- A) 10 B) 20 C) 30 D) 40 E) 50

3. Tümleyeninin ölçüsünün, bütünleyeninin ölçüsüne oranı $\frac{1}{4}$ olan açının ölçüsü kaç derecedir?

- A) 30 B) 45 C) 50 D) 60 E) 75

4. Bütünler iki açıdan birinin ölçüsü diğerinin yarısından 15° fazla ise küçük olan açı kaç derecedir?

- A) 55 B) 60 C) 65 D) 70 E) 75

5. Bütünler iki açının ölçüleri farkı 20° ise küçük olan açı kaç derecedir?

- A) 45 B) 60 C) 65 D) 70 E) 80

6. Bütünler iki açının birbirine oranı $\frac{2}{3}$ olduğuna göre, bu açıların farkı kaç derecedir?

- A) 28 B) 32 C) 34 D) 36 E) 40

1. A 2. B 3. D 4. D 5. E 6. D

Tümleler - Bütünler Açılar

Örnek

Bütünleyeninin ölçüsünün $\frac{1}{4}$ ü, tümleyeninin ölçüsünden 15° fazla olan açının ölçüsü kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90



Çözüm

Aradığımız açının ölçüsü x olsun.

Tümleyeni: $90^\circ - x$

Bütünleyeni: $180^\circ - x$

$$\frac{180^\circ - x}{4} = 90^\circ - x + 15^\circ$$

$$\frac{180^\circ - x}{4} = 105^\circ - x$$

$$180^\circ - x = 420^\circ - 4x \Rightarrow 3x = 240^\circ \Rightarrow x = 80^\circ \text{ olur.}$$

Cevap D

TEST - 7

1. Bütünleri 140° olan açının ölçüsü kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

2. Bir açının ölçüsü bütünlerinin ölçüsünden 40° fazla ise, bu açının ölçüsü kaç derecedir?

- A) 70 B) 80 C) 90 D) 100 E) 110

3. Bütünler iki açıdan birinin ölçüsü diğerinin ölçüsünün 3 katına eşit ise, büyük olan açı kaç derecedir?

- A) 75 B) 90 C) 100 D) 125 E) 135

4. İki farklı açının tümleyenlerinin ölçüleri toplamı 80° dir.

Buna göre bu açıların bütünleyenlerinin ölçüleri toplamı kaç derecedir?

- A) 180 B) 200 C) 220 D) 240 E) 260

5. Komşu tümleler iki açının açıortayları arasında kalan açının ölçüsü kaç derecedir?

- A) 30 B) 45 C) 50 D) 60 E) 75

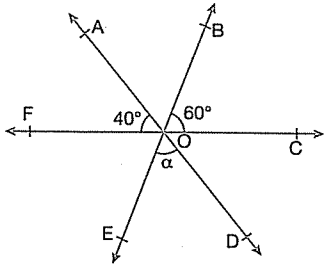
6. Komşu bütünler iki açının açıortayları arasında kalan açının ölçüsü kaç derecedir?

- A) 45 B) 60 C) 75 D) 90 E) 120

1. A 2. E 3. E 4. E 5. B 6. D

Doğru Aç - Ters Aç

Örnek

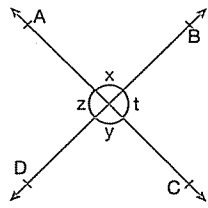


$AD \cap EB = \{O\}$
F, O, C
doğrusal
 $m(\widehat{BOC}) = 60^\circ$
 $m(\widehat{AOF}) = 40^\circ$

Yukarıdaki verilere göre, $m(\widehat{EOD}) = \alpha$ kaç derecedir?

- A) 65 B) 70 C) 75 D) 80 E) 85

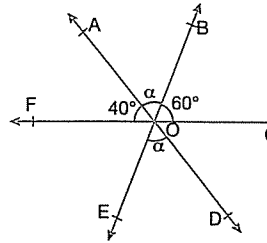
Çözüm



Kesişen iki doğrunun oluşturduğu açılardan komşu olmayan açılara ters açılar denir. Ters açılarının ölçüleri birbirine eşittir.

$x = y$ ve $z = t$ dir.

$x + t = 180^\circ$ (Doğru aç)



$m(\widehat{EOD}) = m(\widehat{AOB}) = \alpha$
(Ters açı)

$40^\circ + \alpha + 60^\circ = 180^\circ$

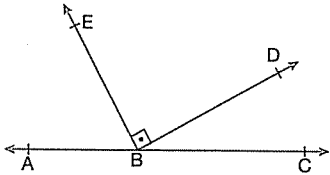
(Doğru açı)

$\alpha = 80^\circ$ olur.

Cevap D

TEST - 8

1.



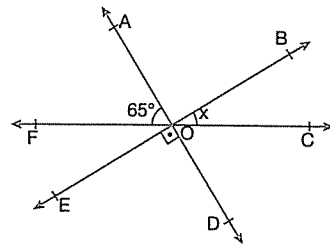
A, B, C
doğrusal
noktalar
[BE] $\perp$ [BD]

$m(\widehat{ABE}) = 2m(\widehat{CBD}) = 2\alpha$

Yukarıdaki verilere göre, α kaç derecedir?

- A) 30 B) 35 C) 40 D) 45 E) 60

3.

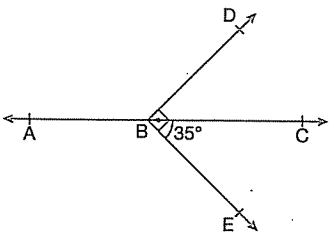


$AD \cap BE = \{O\}$
F, O, C doğrusal noktalar
[OE] $\perp$ [OD]
 $m(\widehat{FOA}) = 65^\circ$

Yukarıdaki verilere göre, $m(\widehat{BOC}) = x$ kaç derecedir?

- A) 15 B) 25 C) 30 D) 45 E) 60

2.

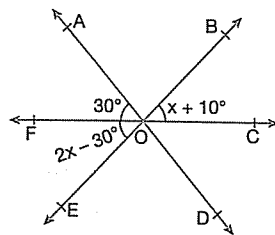


A, B, C
doğrusal
noktalar
[BD] $\perp$ [BE]
 $m(\widehat{CBE}) = 35^\circ$

Yukarıdaki verilere göre, $m(\widehat{ABD})$ kaç derecedir?

- A) 80 B) 90 C) 95 D) 105 E) 125

4.



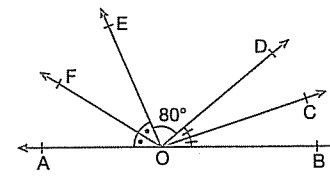
$AD \cap BE = \{O\}$
F, O, C doğrusal noktalar
 $m(\widehat{BOC}) = x + 10^\circ$
 $m(\widehat{FOE}) = 2x - 30^\circ$
 $m(\widehat{AOF}) = 30^\circ$

Yukarıdaki verilere göre, $m(\widehat{AOB})$ kaç derecedir?

- A) 75 B) 80 C) 85 D) 90 E) 100

Doğru Aç - Açıortay

Örnek

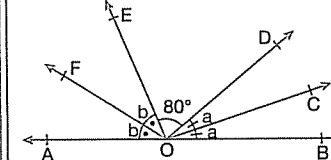


A, O, B
doğrusal
[OF ve [OC
açıortay
 $m(\widehat{EOD}) = 80^\circ$

Yukarıdaki verilere göre, $m(\widehat{FOC})$ kaç derecedir?

- A) 110 B) 120 C) 125 D) 130 E) 135

Çözüm



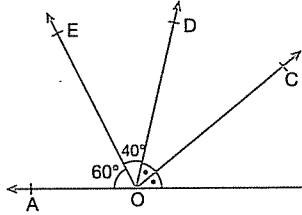
Şekilde
 $2a + 2b + 80^\circ = 180^\circ$
 $2a + 2b = 100^\circ$
 $a + b = 50^\circ$

$m(\widehat{FOC}) = a + b + 80^\circ = 50^\circ + 80^\circ$
 $= 130^\circ$ olur.

Cevap D

TEST - 9

1.

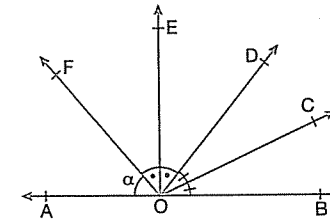


A, O, B doğru-
sal noktalar
[OC açıortay
 $m(\widehat{AOE}) = 60^\circ$
 $m(\widehat{EOD}) = 40^\circ$

Yukarıdaki verilere göre, $m(\widehat{EOC})$ kaç derecedir?

- A) 40 B) 60 C) 80 D) 100 E) 110

3.

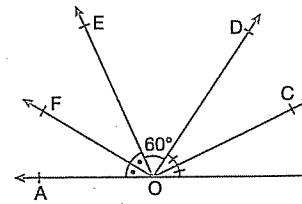


A, O, B doğru-
sal noktalar
[OE ve [OC
açıortaylar
 $m(\widehat{EOC}) = 65^\circ$

Yukarıdaki verilere göre, $m(\widehat{AOF}) = \alpha$ kaç derecedir?

- A) 40 B) 45 C) 50 D) 55 E) 60

2.

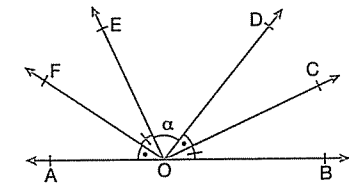


A, O, B doğru-
sal noktalar
[OC ve [OF
açıortaylar
 $m(\widehat{EOD}) = 60^\circ$

Yukarıdaki verilere göre, $m(\widehat{FOC})$ kaç derecedir?

- A) 80 B) 90 C) 100 D) 110 E) 120

4.



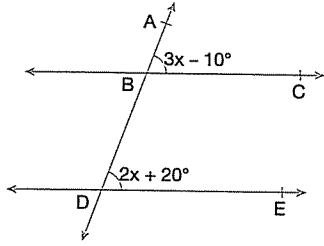
A, O, B doğrusal noktalar
 $m(\widehat{AOF}) = m(\widehat{DOC})$, $m(\widehat{FOE}) = m(\widehat{COB})$
 $m(\widehat{FOC}) = 130^\circ$

Yukarıdaki verilere göre, $m(\widehat{EOD}) = \alpha$ kaç derecedir?

- A) 60 B) 65 C) 75 D) 80 E) 90

Yöndeş Açılar

Örnek



BC // DE,

A, B, D noktaları doğrusal

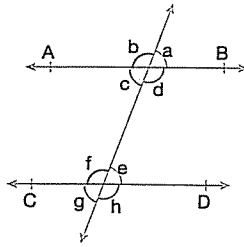
$$m(\widehat{ABC}) = 3x - 10^\circ, \quad m(\widehat{BDE}) = 2x + 20^\circ$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 10 B) 15 C) 20 D) 30 E) 40



Çözüm



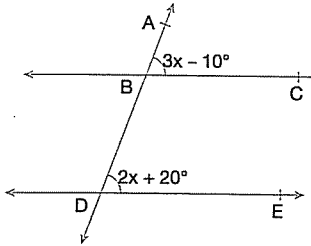
Paralel iki doğruya aynı yöne bakan açılara yöndeş açılar denir.

AB // CD

Yöndeş açılarının ölçüleri eşittir.

$$a = e \quad b = f$$

$$d = h \quad c = g$$



$$3x - 10^\circ = 2x + 20^\circ$$

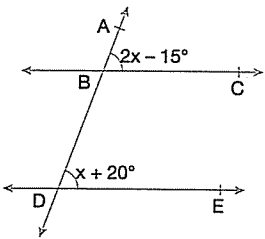
(Yöndeş Açılar)

$$x = 30^\circ \text{ olur.}$$

Cevap D

TEST - 10

1.



BC // DE

A, B, D noktaları doğrusal

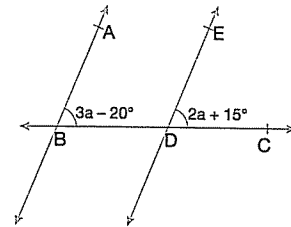
$$m(\widehat{ABC}) = 2x - 15^\circ$$

$$m(\widehat{BDE}) = x + 20^\circ$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 25 B) 30 C) 35 D) 40 E) 45

3.



BA // DE

B, D, C noktaları doğrusal

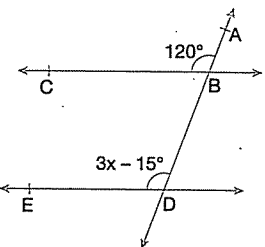
$$m(\widehat{ABD}) = 3a - 20^\circ$$

$$m(\widehat{EDC}) = 2a + 15^\circ$$

Yukarıdaki verilere göre, m(EDC) kaç derecedir?

- A) 85 B) 80 C) 75 D) 65 E) 60

2.



BC // DE

A, B, D noktaları doğrusal

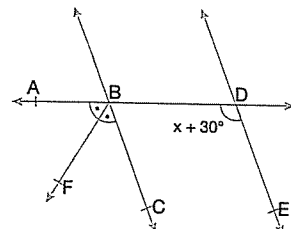
$$m(\widehat{ABC}) = 120^\circ$$

$$m(\widehat{BDE}) = 3x - 15^\circ$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 40 B) 45 C) 50 D) 55 E) 60

4.



BC // DE

A, B, D doğrusal
BF açıortay

$$m(\widehat{BDE}) = x + 30^\circ$$

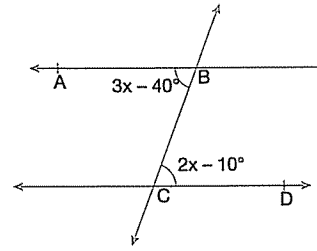
$$m(\widehat{ABF}) = x - 10^\circ$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 50 B) 55 C) 60 D) 65 E) 70

İç Ters Açılar

Örnek



BA // CD

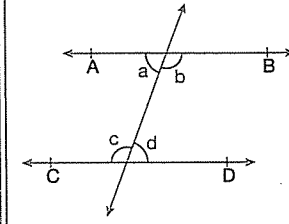
$$m(\widehat{ABC}) = 3x - 40^\circ, \quad m(\widehat{BCD}) = 2x - 10^\circ$$

Yukarıdaki verilere göre, m(ABC) kaç derecedir?

- A) 50 B) 45 C) 40 D) 35 E) 30

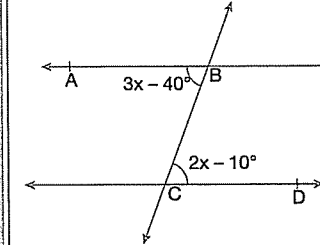


Çözüm



Paralel doğrular arasında kalan ters yönlü açılara iç ters açılar denir. İç ters açılar birbirine eşittir.

$$a = d \quad b = c$$



$$3x - 40^\circ = 2x - 10^\circ$$

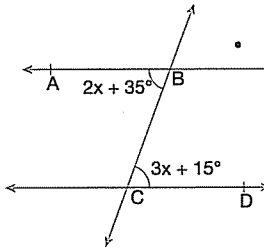
$$x = 30^\circ \text{ olur.}$$

$$3x - 40^\circ = 3 \cdot 30^\circ - 40^\circ = 50^\circ \text{ olur.}$$

Cevap A

TEST - 11

1.



BA // CD

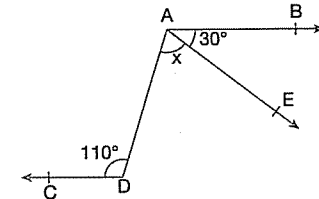
$$m(\widehat{ABC}) = 2x + 35^\circ$$

$$m(\widehat{BCD}) = 3x + 15^\circ$$

Yukarıdaki verilere göre, m(BCD) kaç derecedir?

- A) 85 B) 80 C) 75 D) 70 E) 65

3.



[AB] // [DC]

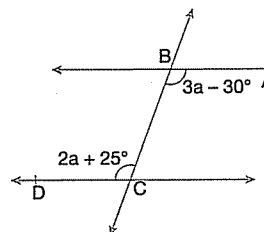
$$m(\widehat{ADC}) = 110^\circ$$

$$m(\widehat{BAE}) = 30^\circ$$

olduğuna göre, m(DAE) = x kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

2.



BA // CD

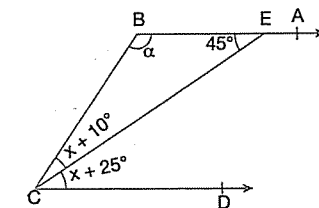
$$m(\widehat{ABC}) = 3a - 30^\circ$$

$$m(\widehat{BCD}) = 2a + 25^\circ$$

Yukarıdaki verilere göre, a kaç derecedir?

- A) 50 B) 55 C) 60 D) 65 E) 70

4.



Şekilde

[BA] // [CD]

$$m(\widehat{BEC}) = 45^\circ$$

$$m(\widehat{ECD}) = x + 25^\circ$$

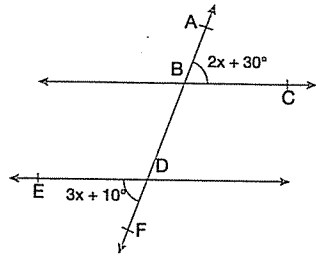
$$m(\widehat{BCE}) = x + 10^\circ$$

olduğuna göre, m(CBE) = alpha kaç derecedir?

- A) 95 B) 100 C) 105 D) 110 E) 115

Dış Ters Açılar

Örnek



CB // DE, A, B, D, F doğrusal noktalar

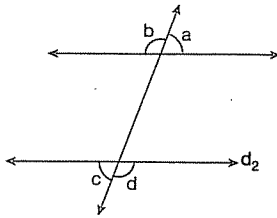
$$m(\widehat{ABC}) = 2x + 30^\circ, \quad m(\widehat{EDF}) = 3x + 10^\circ$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 10 B) 20 C) 30 D) 40 E) 50

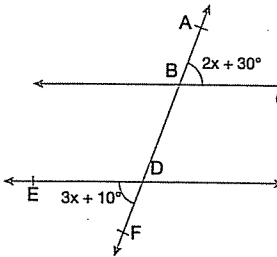


Çözüm



Paralel doğruların dışın-
da kalan ters yönlü açı-
lara dış ters açılar denir.
Dış ters açılarının ölçüleri
eşittir.

$$a = c \quad b = d$$



$$3x + 10 = 2x + 30^\circ$$

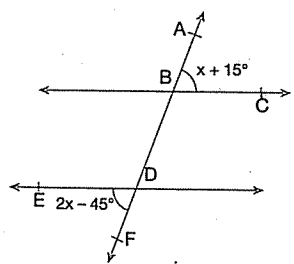
(Dış ters açılar)

$$x = 20^\circ \text{ olur.}$$

Cevap B

TEST - 12

1.



BC // DE

A, B, D, F noktaları
doğrusal

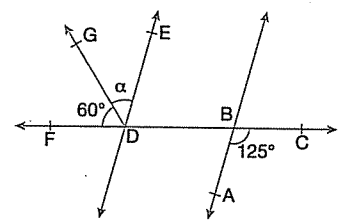
$$m(\widehat{ABC}) = x + 15^\circ$$

$$m(\widehat{EDF}) = 2x - 45^\circ$$

Yukarıdaki verilere göre, $m(\widehat{ABC})$ kaç derecedir?

- A) 60 B) 70 C) 75 D) 80 E) 85

3.



BA // DE

F, D, B, C doğ-
rusal noktalar

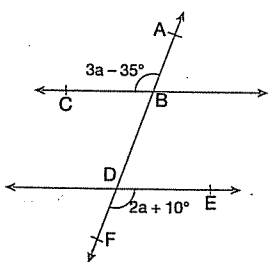
$$m(\widehat{CBA}) = 125^\circ$$

$$m(\widehat{FDG}) = 60^\circ$$

olduğuna göre, $m(\widehat{GDE}) = \alpha$ kaç derecedir?

- A) 60 B) 65 C) 70 D) 75 E) 80

2.



BC // DE

A, B, D, F noktaları
doğrusal

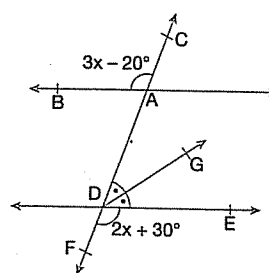
$$m(\widehat{ABC}) = 3a - 35^\circ$$

$$m(\widehat{EDF}) = 2a + 10^\circ$$

Yukarıdaki verilere göre, a kaç derecedir?

- A) 65 B) 60 C) 55 D) 50 E) 45

4.



AB // DE

C, A, D, F doğrusal
noktalar

[DG] açıortay

$$m(\widehat{BAC}) = 3x - 20^\circ$$

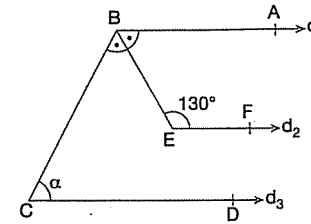
$$m(\widehat{FDE}) = 2x + 30^\circ$$

Yukarıdaki verilere göre, $m(\widehat{FDG})$ kaç derecedir?

- A) 140 B) 145 C) 150 D) 155 E) 160

Karşı Durumlu Açılar - I

Örnek



$$d_1 // d_2 // d_3$$

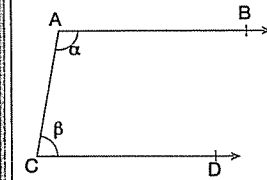
$$m(\widehat{CBE}) = m(\widehat{EBA}), \quad m(\widehat{BEF}) = 130^\circ \text{ ise,}$$

Yukarıdaki verilere göre, $m(\widehat{BCD})$ kaç dere-
cedir?

- A) 50 B) 55 C) 60 D) 70 E) 80

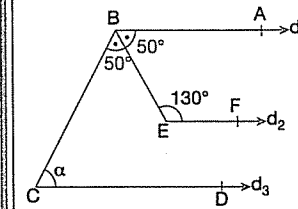


Çözüm



$$[AB // [CD$$

$$\alpha + \beta = 180^\circ$$



$$d_1 // d_2 \text{ ise}$$

$$m(\widehat{BEF}) + m(\widehat{EBA}) = 180^\circ$$

$$130 + m(\widehat{EBA}) = 180^\circ$$

$$m(\widehat{EBA}) = 50^\circ \text{ olur.}$$

$$m(\widehat{CBE}) = m(\widehat{EBA}) = 50^\circ \text{ dir.}$$

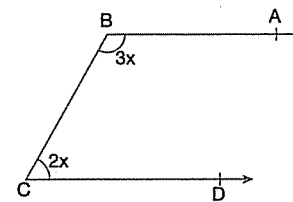
$$d_1 // d_3 \text{ ise, } m(\widehat{CBA}) + m(\widehat{BCD}) = 180^\circ$$

$$100^\circ + \alpha = 180^\circ \Rightarrow \alpha = 80^\circ \text{ dir.}$$

Cevap E

TEST - 13

1.



$$[BA // [CD$$

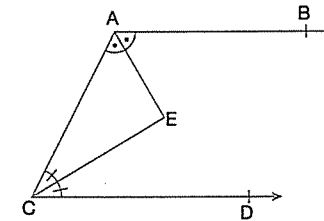
$$m(\widehat{ABC}) = 3x$$

$$m(\widehat{BCD}) = 2x$$

Yukarıdaki verilere göre, $m(\widehat{BCD})$ kaç derecedir?

- A) 84 B) 80 C) 76 D) 74 E) 72

3.



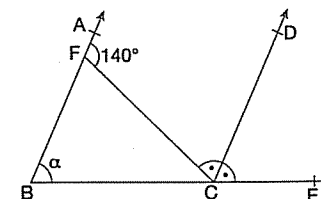
$$[AB // [CD$$

[AE] ve [CE]
açıortaylar

Yukarıdaki verilere göre, $m(\widehat{AEC})$ kaç derecedir?

- A) 85 B) 90 C) 95 D) 100 E) 110

2.



$$[BA // [CD$$

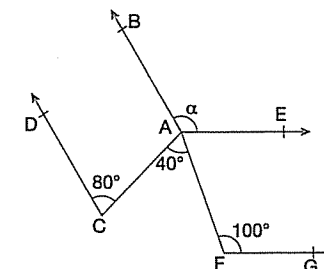
[CD] açıortay

$$m(\widehat{AFC}) = 140^\circ$$

olduğuna göre, $m(\widehat{ABC}) = \alpha$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

4.



$$[AB // [CD$$

[AE] // [FG

$$m(\widehat{AFG}) = 100^\circ$$

$$m(\widehat{DCA}) = 80^\circ$$

$$m(\widehat{CAF}) = 40^\circ$$

olduğuna göre, $m(\widehat{BAE}) = \alpha$ kaç derecedir?

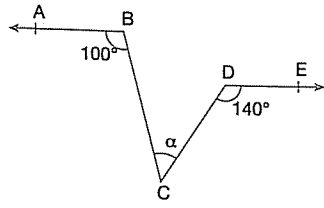
- A) 150 B) 140 C) 130 D) 120 E) 110

1. C 2. E 3. B 4. D

1. E 2. B 3. B 4. B

Karşı Durumlu Açılar - II

Örnek



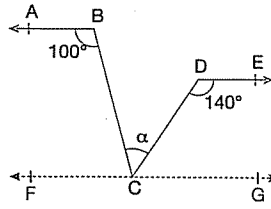
[DE // [BA

$$m(\widehat{CDE}) = 140^\circ, m(\widehat{ABC}) = 100^\circ$$

olduğuna göre, $m(\widehat{BCD}) = \alpha$ kaç derecedir?

- A) 40 B) 45 C) 50 D) 50 E) 60

Çözüm



FG // [BA çizilirse

$$m(\widehat{ABC}) + m(\widehat{FCB}) = 180^\circ$$

$$100^\circ + m(\widehat{FCB}) = 180^\circ$$

$$m(\widehat{FCB}) = 80^\circ$$

$$m(\widehat{CDE}) + m(\widehat{DCG}) = 180^\circ$$

$$140^\circ + m(\widehat{DCG}) = 180^\circ \Rightarrow m(\widehat{DCG}) = 40^\circ$$

$$m(\widehat{FCB}) + m(\widehat{BCD}) + m(\widehat{DCG}) = 180^\circ$$

$$80^\circ + m(\widehat{BCD}) + 40^\circ = 180^\circ, m(\widehat{BCD}) = 60^\circ$$

Cevap E

TEST - 14

1. [BA // [DE
 $m(\widehat{ABC}) = 135^\circ$
 $m(\widehat{BCD}) = 50^\circ$
 olduğuna göre, $m(\widehat{CDE}) = x$ kaç derecedir?
 A) 85 B) 90 C) 95 D) 100 E) 105

3. [AB // [FG // [DE
 [CF] açkırtay
 $m(\widehat{BAC}) = 140^\circ$
 $m(\widehat{CDE}) = 160^\circ$
 olduğuna göre, $m(\widehat{CFG}) = \alpha$ kaç derecedir?
 A) 130 B) 120 C) 110 D) 100 E) 90

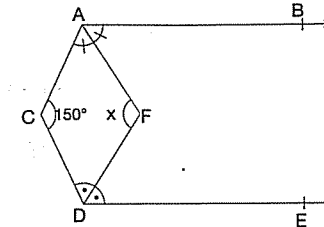
2. [BC // [DE
 $m(\widehat{ABC}) = 80^\circ$
 $m(\widehat{BAD}) = 40^\circ$
 olduğuna göre, $m(\widehat{ADE}) = \alpha$ kaç derecedir?
 A) 150 B) 140 C) 130 D) 120 E) 110

4. [AB // [EF
 $m(\widehat{DEF}) = 120^\circ$
 $m(\widehat{BAC}) = 80^\circ$
 $m(\widehat{ACD}) = 30^\circ$
 olduğuna göre, $m(\widehat{CDE}) = \alpha$ kaç derecedir?
 A) 50 B) 55 C) 60 D) 65 E) 70

1. C 2. D 3. D 4. A

Doğru Açılar Karma - I

Örnek



[AB // [DE

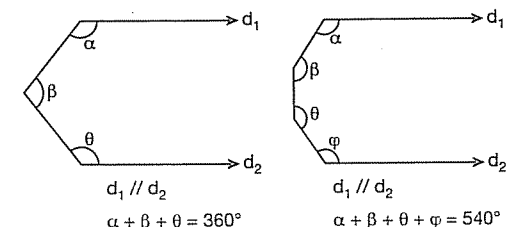
[AF] ve [DF]
 açıortaylar

$$m(\widehat{ACD}) = 150^\circ$$

olduğuna göre, $m(\widehat{AFD}) = x$ kaç derecedir?

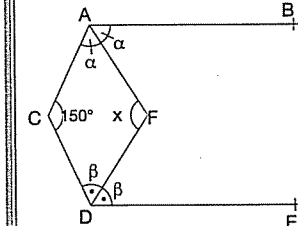
- A) 80 B) 85 C) 90 D) 100 E) 105

Çözüm



$$\alpha + \beta + \theta = 360^\circ$$

$$\alpha + \beta + \theta + \varphi = 540^\circ$$



$$2\alpha + 150^\circ + 2\beta = 360^\circ$$

$$2\alpha + 2\beta = 210^\circ$$

$$\alpha + \beta = 105^\circ$$

ACDF dörtgeninde

$$\alpha + \beta + 150^\circ + x = 360^\circ$$

$$105^\circ + 150^\circ + x = 360^\circ$$

$$255^\circ + x = 360^\circ \Rightarrow x = 105^\circ \text{ olur.}$$

Cevap E

TEST - 15

1. [AB // [DE
 $m(\widehat{BAC}) = 120^\circ$
 $m(\widehat{ACD}) = 110^\circ$
 olduğuna göre, $m(\widehat{CDE}) = x$ kaç derecedir?
 A) 100 B) 110 C) 120 D) 130 E) 140

3. [AB // [DE
 [AF] ve [DF]
 açıortaylar
 $m(\widehat{ACD}) = 100^\circ$
 olduğuna göre, $m(\widehat{AFD}) = \alpha$ kaç derecedir?
 A) 130 B) 120 C) 110 D) 100 E) 90

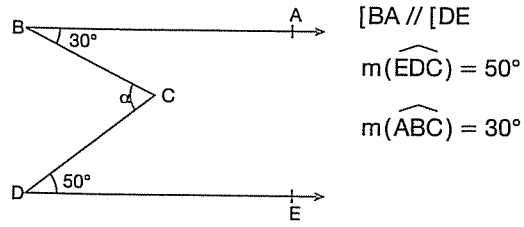
2. [AB // [EF
 $m(\widehat{CDE}) = 160^\circ$
 $m(\widehat{ACD}) = 120^\circ$
 $m(\widehat{BAC}) = 110^\circ$
 olduğuna göre, $m(\widehat{DEF}) = x$ kaç derecedir?
 A) 110 B) 120 C) 130 D) 140 E) 150

4. [AB // [EF
 $m(\widehat{FED}) = 140^\circ$
 $m(\widehat{EDC}) = 130^\circ$
 $m(\widehat{DCA}) = 120^\circ$
 olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?
 A) 20 B) 30 C) 40 D) 50 E) 60

1. D 2. E 3. A 4. B

Doğruda Açılar Karma - II

Örnek



$$[BA // DE]$$

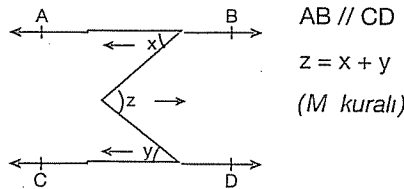
$$m(\widehat{EDC}) = 50^\circ$$

$$m(\widehat{ABC}) = 30^\circ$$

olduğuna göre, $m(\widehat{BCD}) = \alpha$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

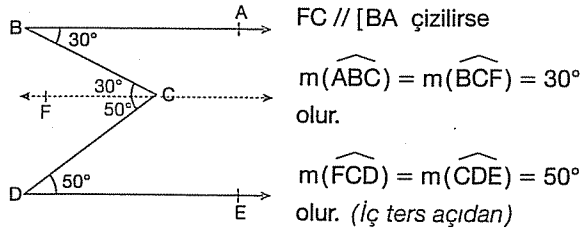
Çözüm



$$AB // CD$$

$$z = x + y$$

(M kuralı)



$$FC // [BA \text{ çizilirse}]$$

$$m(\widehat{ABC}) = m(\widehat{BCF}) = 30^\circ \text{ olur.}$$

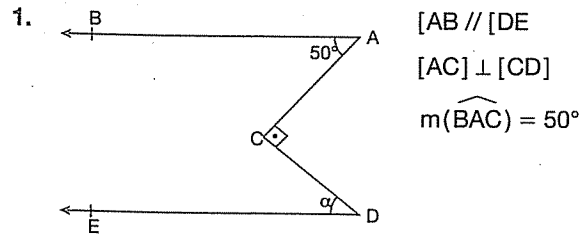
$$m(\widehat{FCD}) = m(\widehat{CDE}) = 50^\circ \text{ olur. (İç ters açıdan)}$$

$$m(\widehat{BCD}) = m(\widehat{BCF}) + m(\widehat{FCD})$$

$$m(\widehat{BCD}) = 30^\circ + 50^\circ = 80^\circ \text{ olur.}$$

Cevap D

TEST - 16



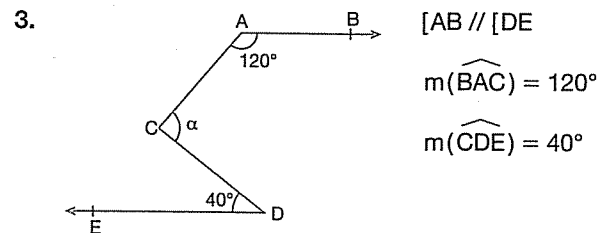
$$[AB // DE]$$

$$[AC] \perp [CD]$$

$$m(\widehat{BAC}) = 50^\circ$$

olduğuna göre, $m(\widehat{CDE}) = \alpha$ kaç derecedir?

- A) 25 B) 30 C) 35 D) 40 E) 45



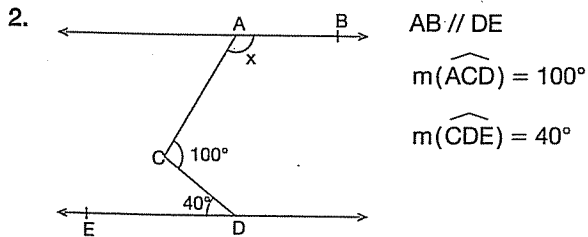
$$[AB // DE]$$

$$m(\widehat{BAC}) = 120^\circ$$

$$m(\widehat{CDE}) = 40^\circ$$

olduğuna göre, $m(\widehat{ACD}) = \alpha$ kaç derecedir?

- A) 95 B) 100 C) 105 D) 110 E) 120



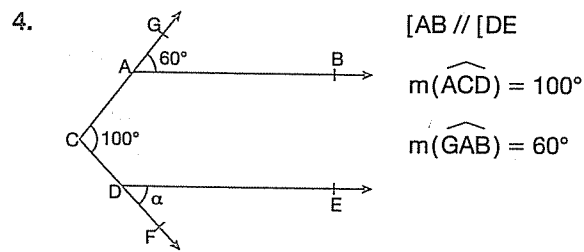
$$AB // DE$$

$$m(\widehat{ACD}) = 100^\circ$$

$$m(\widehat{CDE}) = 40^\circ$$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 100 B) 110 C) 120 D) 130 E) 140



$$[AB // DE]$$

$$m(\widehat{ACD}) = 100^\circ$$

$$m(\widehat{GAB}) = 60^\circ$$

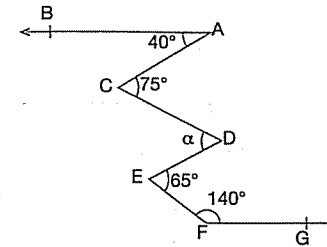
olduğuna göre, $m(\widehat{EDF}) = \alpha$ kaç derecedir?

- A) 60 B) 55 C) 50 D) 45 E) 40

1. D 2. C 3. B 4. E

Doğruda Açılar Karma - III

Örnek



$$[AB // FG]$$

$$m(\widehat{EFG}) = 140^\circ$$

$$m(\widehat{ACD}) = 75^\circ$$

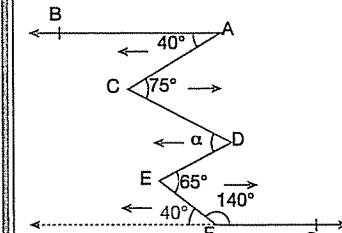
$$m(\widehat{DEF}) = 65^\circ$$

$$m(\widehat{CAB}) = 40^\circ$$

olduğuna göre, $m(\widehat{CDE}) = \alpha$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

Çözüm

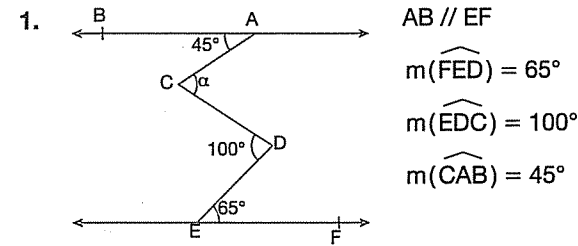


$$[FG \text{ yi uzatırsak, } 40^\circ + \alpha + 40^\circ = 75^\circ + 65^\circ]$$

$$\alpha = 60^\circ \text{ olur.}$$

Cevap C

TEST - 17



$$AB // EF$$

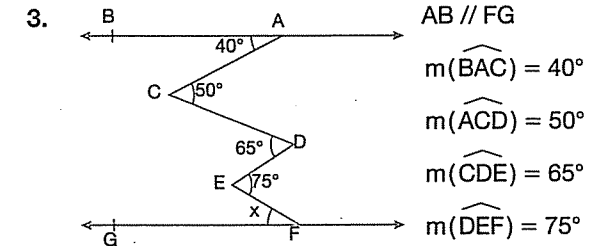
$$m(\widehat{FED}) = 65^\circ$$

$$m(\widehat{EDC}) = 100^\circ$$

$$m(\widehat{CAB}) = 45^\circ$$

olduğuna göre, $m(\widehat{ACD}) = \alpha$ kaç derecedir?

- A) 85 B) 80 C) 75 D) 70 E) 65



$$AB // FG$$

$$m(\widehat{BAC}) = 40^\circ$$

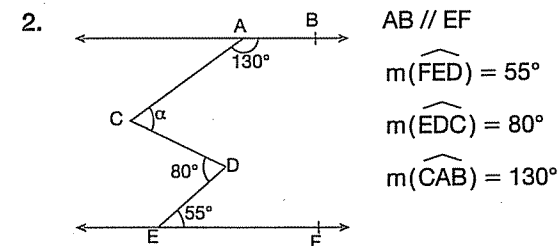
$$m(\widehat{ACD}) = 50^\circ$$

$$m(\widehat{CDE}) = 65^\circ$$

$$m(\widehat{DEF}) = 75^\circ$$

olduğuna göre, $m(\widehat{EFG}) = x$ kaç derecedir?

- A) 40 B) 35 C) 30 D) 25 E) 20



$$AB // EF$$

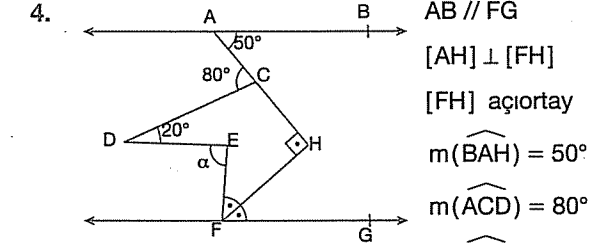
$$m(\widehat{FED}) = 55^\circ$$

$$m(\widehat{EDC}) = 80^\circ$$

$$m(\widehat{CAB}) = 130^\circ$$

olduğuna göre, $m(\widehat{ACD}) = \alpha$ kaç derecedir?

- A) 60 B) 65 C) 70 D) 75 E) 80



$$AB // FG$$

$$[AH] \perp [FH]$$

$$[FH] \text{ açkırtay}$$

$$m(\widehat{BAH}) = 50^\circ$$

$$m(\widehat{ACD}) = 80^\circ$$

$$m(\widehat{CDE}) = 20^\circ$$

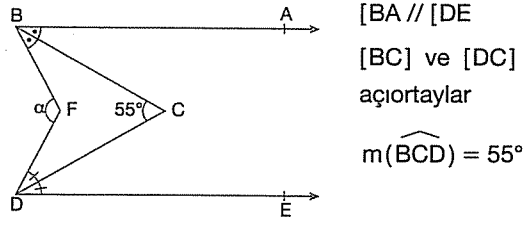
olduğuna göre, $m(\widehat{DEF}) = \alpha$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

1. B 2. D 3. E 4. C

Doğruda Açılar Karma - IV

Örnek

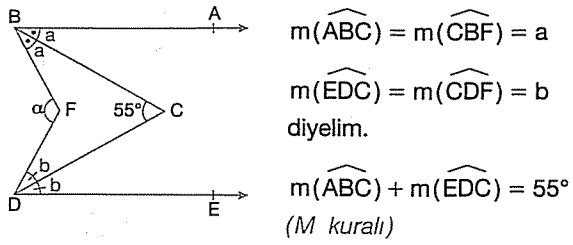


[BA // [DE
[BC] ve [DC]
açıortaylar
 $m(\widehat{BCD}) = 55^\circ$

olduğuna göre, $m(\widehat{BFD}) = \alpha$ kaç derecedir?

- A) 105 B) 110 C) 115 D) 120 E) 125

Çözüm



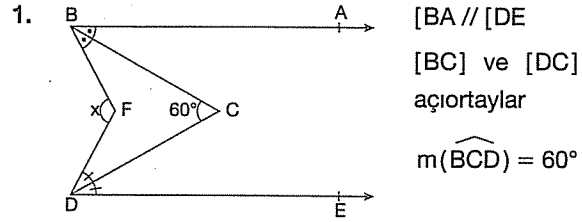
$$a + b = 55^\circ$$

$$m(\widehat{BFD}) = m(\widehat{ABF}) + m(\widehat{EDF}) \quad (M \text{ kuralı})$$

$$m(\widehat{BFD}) = 2a + 2b = 110^\circ \text{ dir.}$$

Cevap B

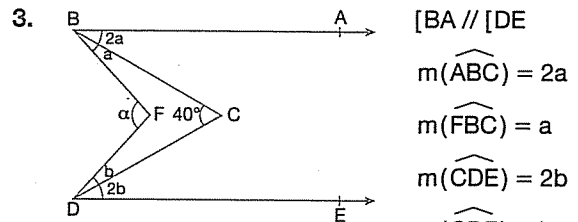
TEST - 18



[BA // [DE
[BC] ve [DC]
açıortaylar
 $m(\widehat{BCD}) = 60^\circ$

olduğuna göre, $m(\widehat{BFD}) = x$ kaç derecedir?

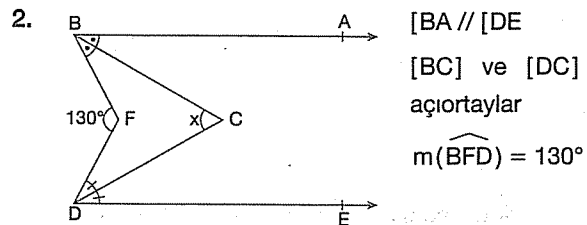
- A) 140 B) 130 C) 120 D) 110 E) 100



[BA // [DE
 $m(\widehat{ABC}) = 2a$
 $m(\widehat{FBC}) = a$
 $m(\widehat{CDE}) = 2b$
 $m(\widehat{CDF}) = b$
 $m(\widehat{BCD}) = 40^\circ$

olduğuna göre, $m(\widehat{BFD}) = \alpha$ kaç derecedir?

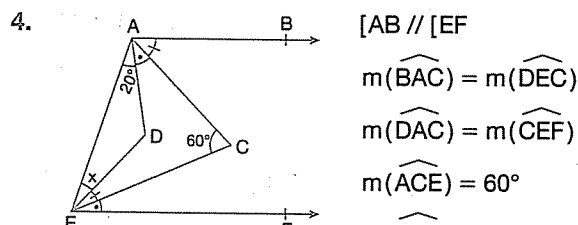
- A) 60 B) 55 C) 50 D) 45 E) 40



[BA // [DE
[BC] ve [DC]
açıortaylar
 $m(\widehat{BFD}) = 130^\circ$

olduğuna göre, $m(\widehat{BCD}) = x$ kaç derecedir?

- A) 60 B) 65 C) 70 D) 75 E) 80



[AB // [EF
 $m(\widehat{BAC}) = m(\widehat{DEC})$
 $m(\widehat{DAC}) = m(\widehat{CEF})$
 $m(\widehat{ACE}) = 60^\circ$
 $m(\widehat{EAD}) = 20^\circ$

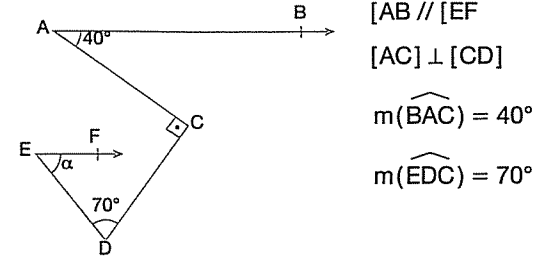
olduğuna göre, $m(\widehat{AED}) = x$ kaç derecedir?

- A) 10 B) 20 C) 30 D) 40 E) 50

1. C 2. B 3. A 4. D

Doğruda Açılar Karma - V

Örnek

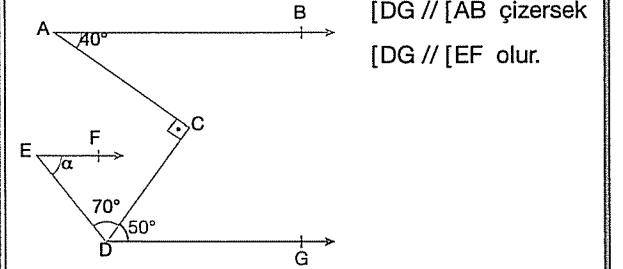


[AB // [EF
[AC] $\perp$ [CD]
 $m(\widehat{BAC}) = 40^\circ$
 $m(\widehat{EDC}) = 70^\circ$

olduğuna göre, $m(\widehat{FED}) = \alpha$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

Çözüm



[DG // [AB çizerek
[DG // [EF olur.

$$m(\widehat{ACD}) = m(\widehat{BAC}) + m(\widehat{CDG}) \quad (M \text{ kuralı})$$

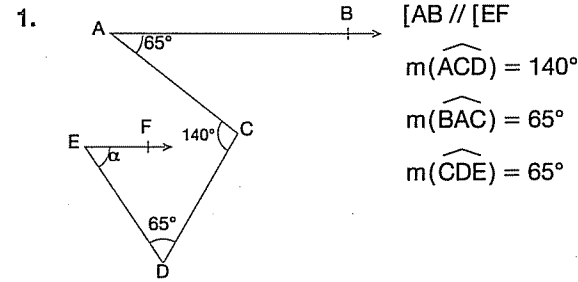
$$90^\circ = 40^\circ + m(\widehat{CDG}) \Rightarrow m(\widehat{CDG}) = 50^\circ$$

$$m(\widehat{FED}) + m(\widehat{EDG}) = 180^\circ$$

$$\alpha + 120^\circ = 180^\circ \Rightarrow \alpha = 60^\circ$$

Cevap C

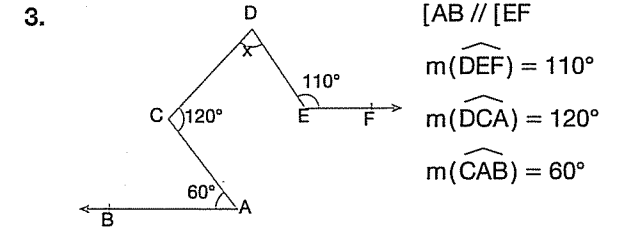
TEST - 19



[AB // [EF
 $m(\widehat{ACD}) = 140^\circ$
 $m(\widehat{BAC}) = 65^\circ$
 $m(\widehat{CDE}) = 65^\circ$

olduğuna göre, $m(\widehat{FED}) = x$ kaç derecedir?

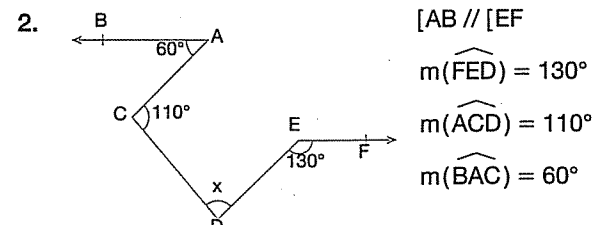
- A) 40 B) 50 C) 60 D) 70 E) 80



[AB // [EF
 $m(\widehat{DEF}) = 110^\circ$
 $m(\widehat{DCA}) = 120^\circ$
 $m(\widehat{CAB}) = 60^\circ$

olduğuna göre, $m(\widehat{CDE}) = x$ kaç derecedir?

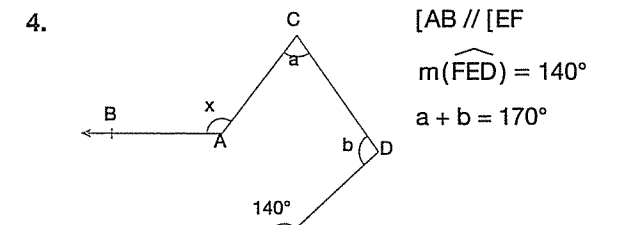
- A) 50 B) 60 C) 70 D) 80 E) 90



[AB // [EF
 $m(\widehat{FED}) = 130^\circ$
 $m(\widehat{ACD}) = 110^\circ$
 $m(\widehat{BAC}) = 60^\circ$

olduğuna göre, $m(\widehat{CDE}) = x$ kaç derecedir?

- A) 75 B) 80 C) 85 D) 90 E) 95



[AB // [EF
 $m(\widehat{FED}) = 140^\circ$
 $a + b = 170^\circ$

olduğuna göre, $m(\widehat{CAB}) = x$ kaç derecedir?

- A) 150 B) 140 C) 130 D) 120 E) 110

1. A 2. B 3. A 4. C

Üçgenin Açıları - I

Örnek

Bir üçgenin iç açılarının ölçüleri 3, 4, 5 sayıları ile orantılı olduğuna göre, en küçük açısı kaç derecedir?

- A) 15 B) 20 C) 25 D) 45 E) 60



Çözüm

$$a + b + c = 180^\circ$$

Bir üçgenin iç açılarının toplamı 180° dir.

Üçgenin iç açıları 3, 4, 5 ile orantılı olduğuna göre, üçgen açıları;

$$m(\hat{A}) = 3x$$

$$m(\hat{B}) = 4x$$

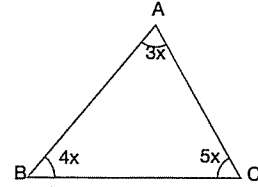
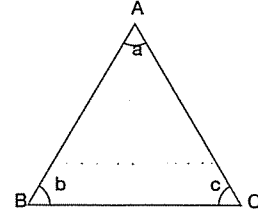
$$m(\hat{C}) = 5x$$

$$m(\hat{A}) + m(\hat{B}) + m(\hat{C}) = 180^\circ$$

$$3x + 4x + 5x = 180^\circ \Rightarrow 12x = 180^\circ \Rightarrow x = 15^\circ \text{ dir.}$$

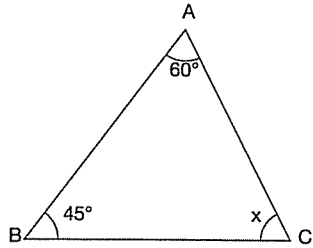
En küçük açı, $3x = 3 \cdot 15 = 45^\circ$ dir.

Cevap D



TEST - 1

1.



ABC bir üçgen

$$m(\hat{BAC}) = 60^\circ$$

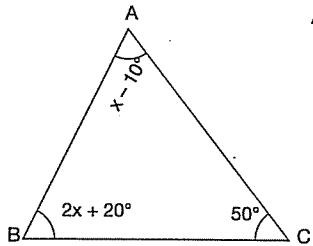
$$m(\hat{ABC}) = 45^\circ$$

$$m(\hat{BCA}) = x$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 60 B) 65 C) 70 D) 75 E) 80

2.



ABC bir üçgen

$$m(\hat{BAC}) = x - 10^\circ$$

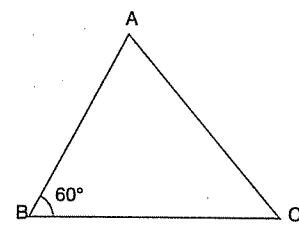
$$m(\hat{ABC}) = 2x + 20^\circ$$

$$m(\hat{BCA}) = 50^\circ$$

Yukarıdaki verilere göre, $m(\hat{BAC})$ kaç derecedir?

- A) 60 B) 50 C) 40 D) 30 E) 20

3.



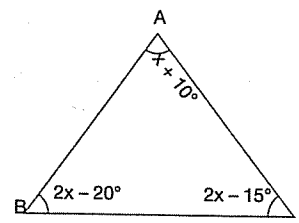
ABC bir üçgen

$$m(\hat{BAC}) = 4m(\hat{ACB})$$

Yukarıdaki verilere göre, $m(\hat{BAC})$ kaç derecedir?

- A) 82 B) 86 C) 90 D) 92 E) 96

4.



ABC bir üçgen

$$m(\hat{BAC}) = x + 10^\circ$$

$$m(\hat{ABC}) = 2x - 20^\circ$$

$$m(\hat{BCA}) = 2x - 15^\circ$$

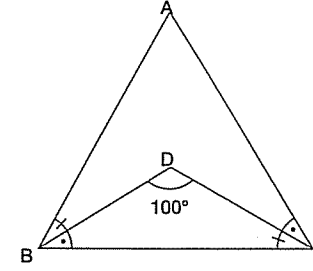
Yukarıdaki verilere göre, $m(\hat{ABC})$ kaç derecedir?

- A) 62 B) 60 C) 58 D) 56 E) 54

1. D 2. D 3. E 4. A

Üçgenin Açıları - II

Örnek



ABC bir üçgen

$$m(\hat{ABD}) = m(\hat{BCD}), m(\hat{DBC}) = m(\hat{ACD})$$

$$m(\hat{BDC}) = 100^\circ$$

olduğuna göre, $m(\hat{BAC})$ kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60



Çözüm

BDC üçgeninde

$$a + b + 100^\circ = 180^\circ$$

$$\Rightarrow a + b = 180^\circ - 100^\circ$$

$$\Rightarrow a + b = 80$$

ABC üçgeninde

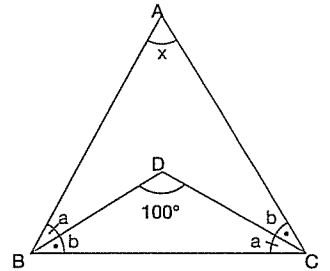
$$m(\hat{A}) + m(\hat{B}) + m(\hat{C}) = 180^\circ$$

$$x + a + b + a + b = 180^\circ \Rightarrow x + 80^\circ + 80^\circ = 180^\circ$$

$$\Rightarrow x = 180^\circ - 160^\circ$$

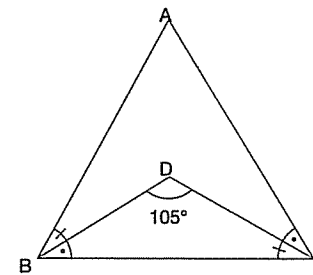
$$\Rightarrow x = 20^\circ \text{ olur.}$$

Cevap A



TEST - 2

1.



ABC bir üçgen

$$m(\hat{ABD}) = m(\hat{DCB})$$

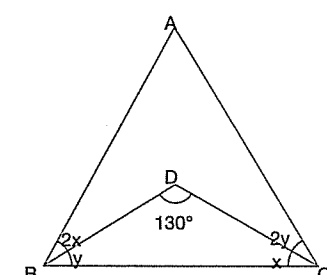
$$m(\hat{DBC}) = m(\hat{DCA})$$

$$m(\hat{BDC}) = 105^\circ$$

Yukarıdaki verilere göre, $m(\hat{BAC})$ kaç derecedir?

- A) 30 B) 35 C) 40 D) 45 E) 50

3.



ABC bir üçgen

$$m(\hat{ABD}) = 2x$$

$$m(\hat{BCD}) = x$$

$$m(\hat{ACD}) = 2y$$

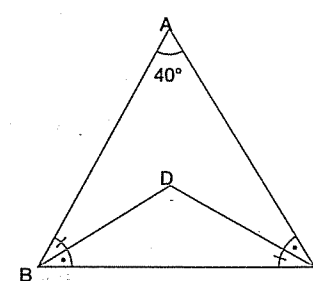
$$m(\hat{DBC}) = y$$

$$m(\hat{BDC}) = 130^\circ$$

Yukarıdaki verilere göre, $m(\hat{BAC})$ kaç derecedir?

- A) 50 B) 45 C) 30 D) 35 E) 20

2.



ABC bir üçgen

$$m(\hat{ABD}) = m(\hat{BCD})$$

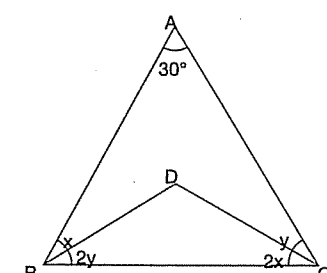
$$m(\hat{DBC}) = m(\hat{DCA})$$

$$m(\hat{BAC}) = 40^\circ$$

Yukarıdaki verilere göre, $m(\hat{BDC})$ kaç derecedir?

- A) 80 B) 90 C) 100 D) 110 E) 120

4.



ABC bir üçgen

$$m(\hat{DBC}) = 2y$$

$$m(\hat{ACD}) = y$$

$$m(\hat{DCB}) = 2x$$

$$m(\hat{ABD}) = x$$

$$m(\hat{BAC}) = 30^\circ$$

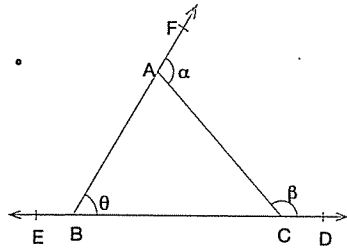
Yukarıdaki verilere göre, $m(\hat{BDC})$ kaç derecedir?

- A) 90 B) 80 C) 70 D) 60 E) 50

1. A 2. D 3. C 4. B

Üçgenin Dış Açları - I

Örnek



ABC bir üçgen, E, B, C, D doğrusal

$$m(\widehat{FAC}) = \alpha, m(\widehat{ACD}) = \beta, m(\widehat{ABC}) = \theta$$

$$\alpha + \beta + \theta = 250^\circ$$

olduğuna göre, $m(\widehat{ABC}) = \theta$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55



Çözüm

Üçgenin dış açılarının toplamı 360° dir.

$$\alpha' + \beta' + \gamma' = 360^\circ$$

$$\alpha + \beta + 180^\circ - \theta = 360^\circ$$

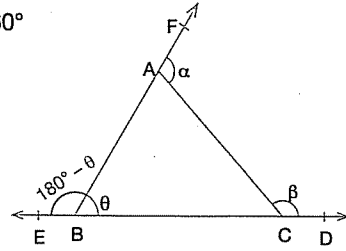
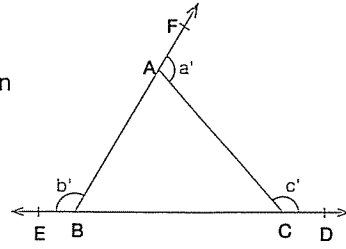
$$- / \alpha + \beta - \theta = 180^\circ$$

$$\alpha + \beta + \theta = 250^\circ$$

+

$$2\theta = 70^\circ$$

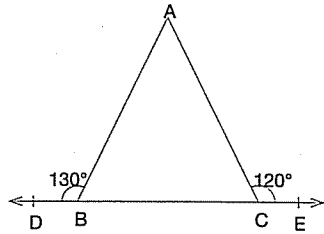
$$\theta = 35^\circ \text{ olur.}$$



Cevap A

TEST - 3

1.



ABC bir üçgen
D, B, C, E doğrusal

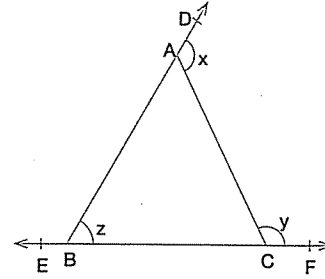
$$m(\widehat{ABD}) = 130^\circ$$

$$m(\widehat{ACE}) = 120^\circ$$

olduğuna göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

3.



ABC bir üçgen

$$m(\widehat{DAC}) = x$$

$$m(\widehat{ACF}) = y$$

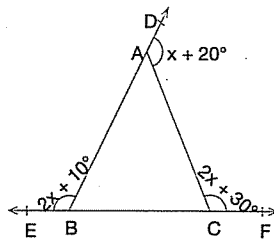
$$m(\widehat{ABC}) = z$$

$$x + y + z = 230^\circ$$

olduğuna göre, $m(\widehat{ABC}) = z$ kaç derecedir?

- A) 25 B) 30 C) 35 D) 40 E) 45

2.



ABC bir üçgen

$$m(\widehat{DAC}) = x + 20^\circ$$

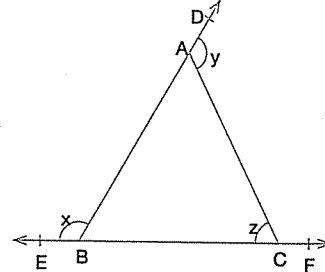
$$m(\widehat{ABE}) = 2x + 10^\circ$$

$$m(\widehat{ACF}) = 2x + 30^\circ$$

olduğuna göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 110 B) 105 C) 100 D) 95 E) 90

4.



ABC bir üçgen

$$m(\widehat{ABE}) = x$$

$$m(\widehat{DAC}) = y$$

$$m(\widehat{ACB}) = z$$

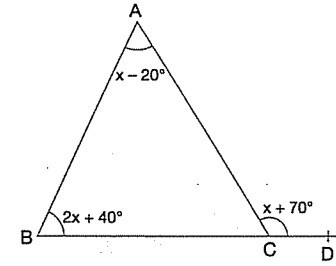
$$x + y + z = 260^\circ$$

olduğuna göre, $m(\widehat{ACB}) = z$ kaç derecedir?

- A) 60 B) 55 C) 50 D) 45 E) 40

Üçgenin Dış Açları - II

Örnek



ABC bir üçgen, B, C, D doğrusal

$$m(\widehat{ABC}) = 2x + 40^\circ, m(\widehat{BAC}) = x - 20^\circ$$

$$m(\widehat{ACD}) = x + 70^\circ$$

Yukarıdaki verilere göre, $m(\widehat{ACB})$ kaç derecedir?

- A) 70 B) 75 C) 80 D) 85 E) 90



Çözüm

Bir üçgende herhangi bir dış açının ölçüsü, kendisine komşu olmayan iki iç açının ölçüleri toplamına eşittir.

$$[AB] \parallel [CE]$$

$$m(\widehat{ACD}) = \alpha + \beta$$

$$x - 20^\circ + 2x + 40^\circ = x + 70^\circ$$

$$\Rightarrow 3x + 20^\circ = x + 70^\circ$$

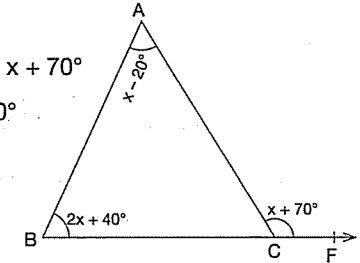
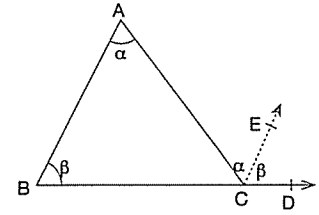
$$\Rightarrow 2x = 50^\circ$$

$$\Rightarrow x = 25^\circ \text{ olur.}$$

$$m(\widehat{C}) + m(\widehat{C'}) = 180^\circ \Rightarrow m(\widehat{C}) + 25^\circ + 70^\circ = 180^\circ$$

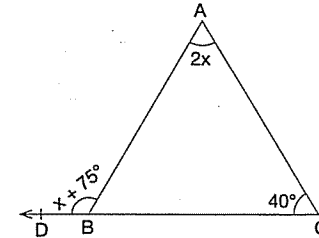
$$\Rightarrow m(\widehat{C}) = 85^\circ \text{ olur.}$$

Cevap D



TEST - 4

1.



ABC bir üçgen
D, B, C doğrusal

$$m(\widehat{ABD}) = x + 75^\circ$$

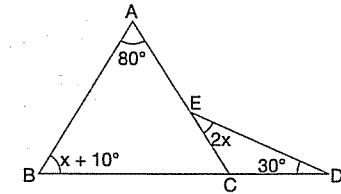
$$m(\widehat{BAC}) = 2x$$

$$m(\widehat{ACB}) = 40^\circ$$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 30 B) 35 C) 40 D) 45 E) 50

3.

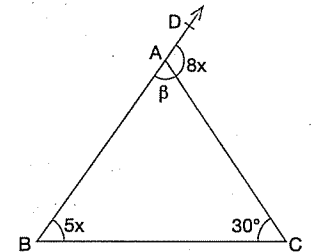


ABC ve ECD
bir üçgen
B, C, D doğrusal

Yukarıdaki verilere göre, x kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

2.



ABC bir üçgen
D, A, B doğrusal

$$m(\widehat{ABC}) = 5x$$

$$m(\widehat{DAC}) = 8x$$

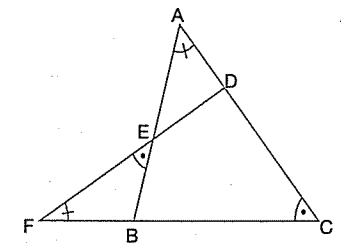
$$m(\widehat{ACB}) = 30^\circ$$

$$m(\widehat{BAC}) = \beta$$

Yukarıdaki verilere göre, β kaç derecedir?

- A) 70 B) 80 C) 90 D) 100 E) 110

4.



ABC ve FDC
birer üçgen

$$m(\widehat{BAC}) = m(\widehat{DFC})$$

$$m(\widehat{ACB}) = m(\widehat{FEB})$$

Yukarıdaki verilere göre, $m(\widehat{ABC})$ kaç derecedir?

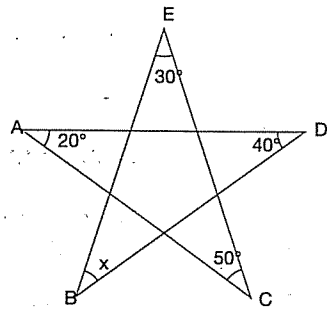
- A) 120 B) 100 C) 90 D) 75 E) 60

1. D 2. C 3. A 4. E

1. B 2. D 3. A 4. C

Üçgenin Dış Açları - V

Örnek



Şekilde,

$$m(\widehat{CAD}) = 20^\circ, m(\widehat{BEC}) = 30^\circ$$

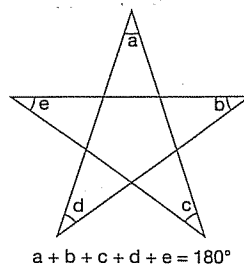
$$m(\widehat{ADB}) = 40^\circ, m(\widehat{ECA}) = 50^\circ$$

olduğuna göre, $m(\widehat{EBD}) = x$ kaç derecedir?

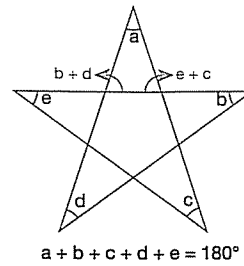
- A) 30 B) 40 C) 50 D) 60 E) 70



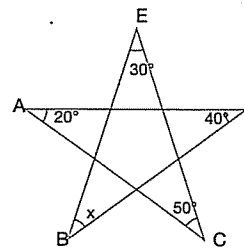
Çözüm



$$a + b + c + d + e = 180^\circ$$



$$a + b + c + d + e = 180^\circ$$



$$20^\circ + 30^\circ + 40^\circ + 50^\circ + x = 180^\circ$$

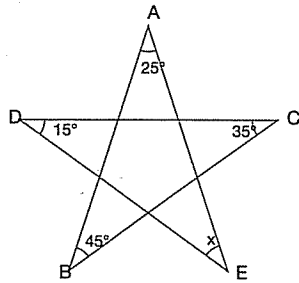
$$\Rightarrow 140^\circ + x = 180^\circ$$

$$\Rightarrow x = 40^\circ \text{ olur.}$$

Cevap B

TEST - 7

1.



Şekilde

$$m(\widehat{CDE}) = 15^\circ$$

$$m(\widehat{BAE}) = 25^\circ$$

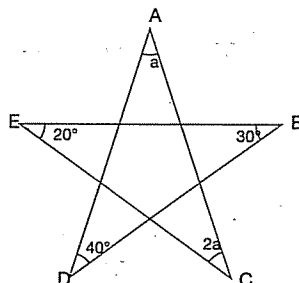
$$m(\widehat{DCB}) = 35^\circ$$

$$m(\widehat{ABC}) = 45^\circ$$

olduğuna göre, $m(\widehat{DEA}) = x$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

2.



Şekilde

$$m(\widehat{BEC}) = 20^\circ$$

$$m(\widehat{EBD}) = 30^\circ$$

$$m(\widehat{ADB}) = 40^\circ$$

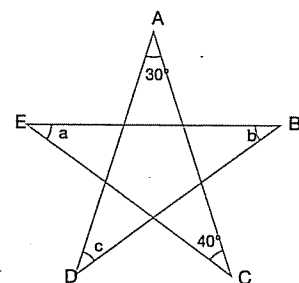
$$m(\widehat{ACE}) = 2a$$

$$m(\widehat{DAC}) = a$$

olduğuna göre, $m(\widehat{DAC})$ kaç derecedir?

- A) 25 B) 30 C) 35 D) 40 E) 45

3.



Şekilde

$$m(\widehat{DAC}) = 30^\circ$$

$$m(\widehat{ECA}) = 40^\circ$$

$$m(\widehat{BEC}) = a$$

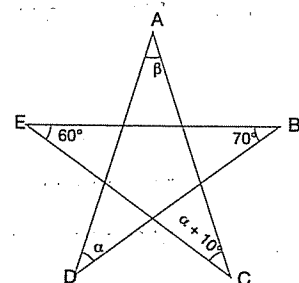
$$m(\widehat{EBD}) = b$$

$$m(\widehat{ADB}) = c$$

olduğuna göre, $a + b + c$ kaçtır?

- A) 90 B) 100 C) 110 D) 120 E) 130

4.



Şekilde

$$m(\widehat{CEB}) = 60^\circ$$

$$m(\widehat{EBD}) = 70^\circ$$

$$m(\widehat{ADB}) = \alpha$$

$$m(\widehat{ACE}) = \alpha + 10^\circ$$

$$m(\widehat{DAC}) = \beta$$

$$\beta = 2\alpha$$

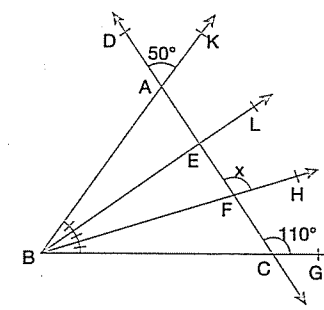
olduğuna göre, $m(\widehat{ECA})$ kaç derecedir?

- A) 5 B) 10 C) 15 D) 20 E) 25

1. C 2. B 3. C 4. D

Üçgenin Dış Açları - VI

Örnek



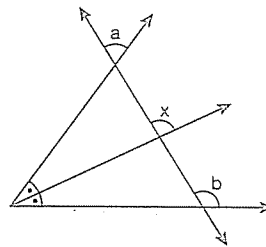
$$m(\widehat{DAK}) = 50^\circ$$

$$m(\widehat{DCG}) = 110^\circ$$

$$m(\widehat{KBL}) = m(\widehat{LBH}) = m(\widehat{HBG})$$

olduğuna göre, $m(\widehat{AFH})$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90



$$x = \frac{a + b}{2}$$



Çözüm

$$\text{Kurala göre, } y = \frac{x + 50^\circ}{2} \Rightarrow 2y = x + 50^\circ$$

$$\Rightarrow 2y - x = 50^\circ$$

$$x = \frac{110^\circ + y}{2} \Rightarrow 2x = 110^\circ + y$$

$$\Rightarrow 2x - y = 110^\circ$$

$$2y - x = 50^\circ$$

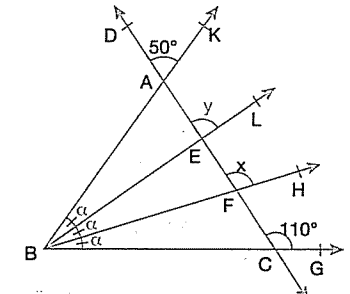
$$2 / 2x - y = 110^\circ$$

$$2y - x = 50^\circ$$

$$4x - 2y = 220^\circ$$

$$3x = 270^\circ$$

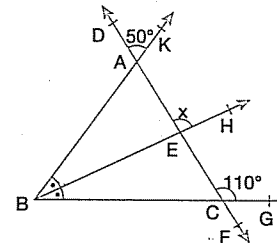
$$x = 90^\circ \text{ olur.}$$



Cevap E

TEST - 8

1.



$$m(\widehat{DAK}) = 50^\circ$$

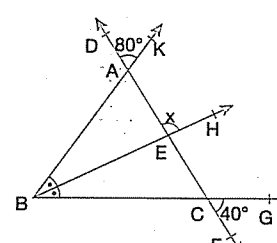
$$m(\widehat{DCG}) = 110^\circ$$

$$m(\widehat{KBH}) = m(\widehat{HBG})$$

olduğuna göre, $m(\widehat{DEH}) = x$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

2.



$$m(\widehat{DAK}) = 80^\circ$$

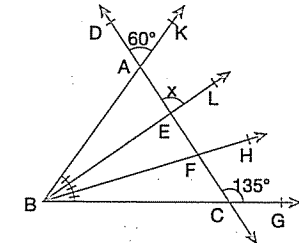
$$m(\widehat{GCF}) = 40^\circ$$

$$m(\widehat{KBH}) = m(\widehat{HBG})$$

olduğuna göre, $m(\widehat{DEH}) = x$ kaç derecedir?

- A) 90 B) 95 C) 100 D) 105 E) 110

3.



$$m(\widehat{DAK}) = 60^\circ$$

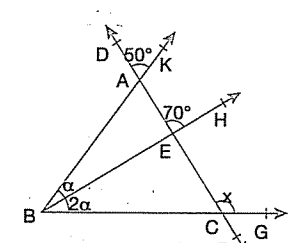
$$m(\widehat{DCG}) = 135^\circ$$

$$m(\widehat{KBL}) = m(\widehat{LBH}) = m(\widehat{HBG})$$

olduğuna göre, $m(\widehat{DEL}) = x$ kaç derecedir?

- A) 75 B) 80 C) 85 D) 90 E) 95

4.



$$m(\widehat{DAK}) = 50^\circ$$

$$m(\widehat{DEH}) = 70^\circ$$

$$m(\widehat{HBG}) = 2\alpha$$

$$m(\widehat{KBH}) = \alpha$$

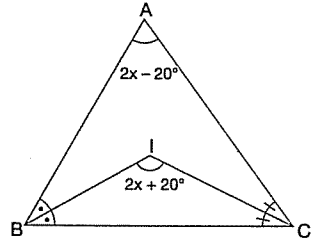
olduğuna göre, $m(\widehat{DCG}) = x$ kaç derecedir?

- A) 130 B) 120 C) 110 D) 100 E) 90

1. D 2. E 3. C 4. C

Üçgende Açortayların Oluşturduğu
Açılar – I

Örnek



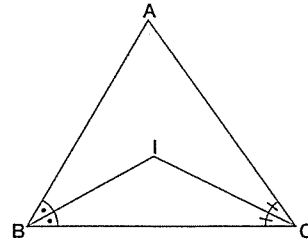
ABC bir üçgen, [BI] ve [CI] açortay

$$m(\widehat{BIC}) = 2x + 20^\circ, m(\widehat{BAC}) = 2x - 20^\circ$$

Yukandaki verilene göre, x kaç derecedir?

- A) 30 B) 40 C) 50 D) 60 E) 70

Çözüm



I, iç açortayların
kesim noktası olmak
üzere,

$$m(\widehat{BIC}) = 90^\circ + \frac{m(\widehat{A})}{2}$$

$$\text{Buna göre, } 2x + 20^\circ = 90^\circ + \frac{2x - 20^\circ}{2}$$

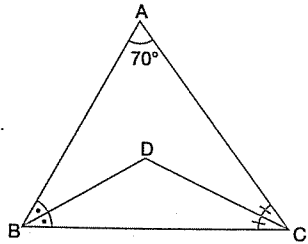
$$\Rightarrow 2x + 20^\circ = 90^\circ + x - 10^\circ$$

$$\Rightarrow x = 60^\circ \text{ olur.}$$

Cevap D

TEST - 9

1.

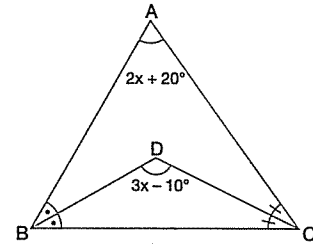


ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BAC}) = 70^\circ$

Yukandaki verilere göre, $m(\widehat{BDC})$ kaç derecedir?

- A) 120 B) 125 C) 130 D) 135 E) 140

3.

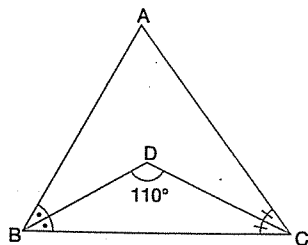


ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BAC}) = 2x + 20^\circ$
 $m(\widehat{BDC}) = 3x - 10^\circ$

Yukandaki verilere göre, x kaç derecedir?

- A) 45 B) 50 C) 55 D) 60 E) 65

2.

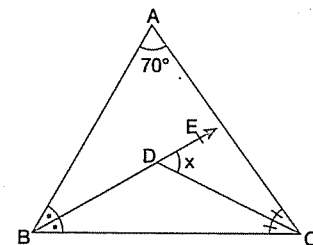


ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BDC}) = 110^\circ$

Yukandaki verilere göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 10 B) 20 C) 30 D) 40 E) 50

4.



ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BAC}) = 70^\circ$

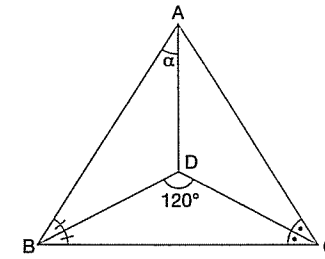
Yukandaki verilere göre, $m(\widehat{EDC})$ kaç derecedir?

- A) 25 B) 40 C) 45 D) 50 E) 55

1. B 2. D 3. C 4. E

Üçgende Açortayların Oluşturduğu
Açılar – II

Örnek



ABC bir üçgen, [BD] ve [DC] açortay

$$m(\widehat{BDC}) = 120^\circ$$

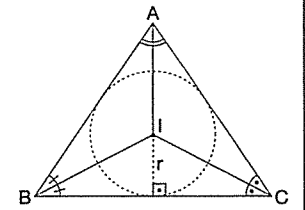
Yukandaki verilene göre, $m(\widehat{BAD}) = \alpha$ kaç derecedir?

- A) 30 B) 35 C) 40 D) 45 E) 50

Çözüm

Üçgende iç açortaylar
bir noktada kesişirler. Bu
nokta iç teğet çemberin
merkezdur.

Yani bir üçgende, iki kö-
şenin açortayının kesi-
şim noktasından, üçüncü köşenin açortayı da geçer.



Buna göre,

$$m(\widehat{BAC}) = 2\alpha \text{ olur.}$$

$$m(\widehat{BDC}) = 90^\circ + \frac{m(\widehat{BAC})}{2}$$

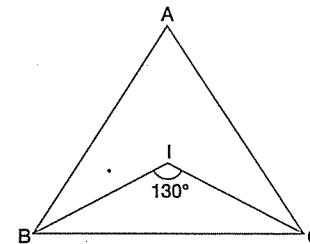
$$120^\circ = 90^\circ + \frac{2\alpha}{2}$$

$$\Rightarrow \alpha = 30^\circ \text{ olur.}$$

Cevap A

TEST - 10

1.

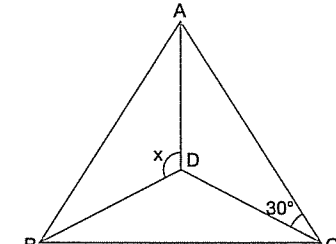


ABC bir üçgen
I, ABC üçge-
ninin iç teğet
çemberinin
merkezi
 $m(\widehat{BIC}) = 130^\circ$

Yukandaki verilere göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

3.

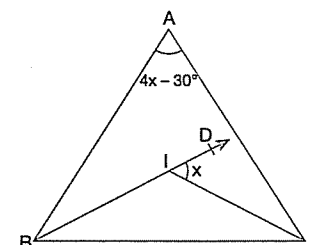


ABC bir üçgen
D, ABC
üçgeninin iç
teğet çemberi-
nin merkezi
 $m(\widehat{ACD}) = 30^\circ$

Yukandaki verilere göre, $m(\widehat{ADB})$ kaç derecedir?

- A) 115 B) 120 C) 125 D) 130 E) 140

2.

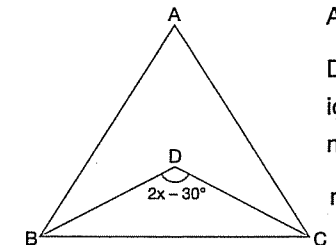


ABC bir üçgen
I, ABC üçgeninin
iç teğet çemberinin
merkezi
 $m(\widehat{BAC}) = 4x - 30^\circ$

olduğuna göre, $m(\widehat{DIC}) = x$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

4.



ABC bir üçgen
D, ABC üçgeninin
iç teğet çemberinin
merkezi
 $m(\widehat{BDC}) = 2x - 30^\circ$

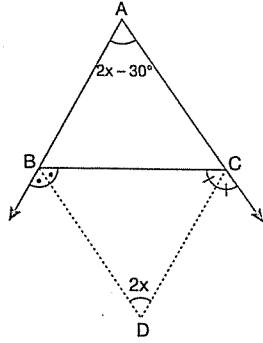
olduğuna göre, x in alabileceği en büyük ve en
küçük tamsayı değerlerinin toplamı kaçtır?

- A) 145 B) 150 C) 155 D) 160 E) 165

1. D 2. A 3. B 4. E

Üçgende Açortayların Oluşturduğu
Açılar – III

Örnek



ABC bir üçgen
[BD] ve [CD]
dış açortay
 $m(\widehat{BAC}) = 2x - 30^\circ$
 $m(\widehat{BDC}) = 2x$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 35 B) 45 C) 50 D) 55 E) 65

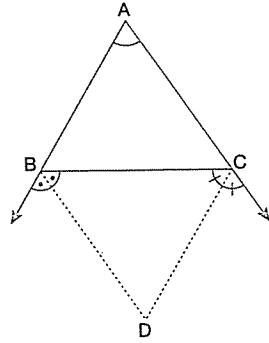
Çözüm

D, iki dış açortayın kesiştiği nokta olmak üzere,

$$m(\widehat{BDC}) = 90^\circ - \frac{m(\widehat{A})}{2}$$

Buna göre,

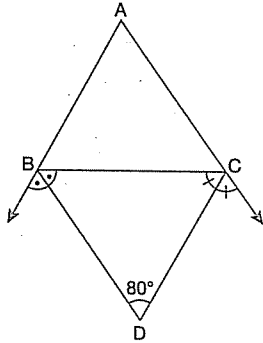
$$\begin{aligned} 2x &= 90^\circ - \frac{2x - 30^\circ}{2} \\ \Rightarrow 2x &= 90^\circ - x + 15^\circ \\ \Rightarrow 3x &= 105^\circ \\ \Rightarrow x &= 35^\circ \text{ olur.} \end{aligned}$$



Cevap A

TEST - 11

1.

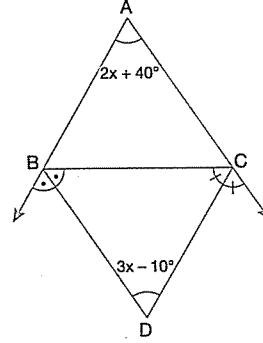


ABC bir üçgen
[BD] ve [CD]
dış açortay
 $m(\widehat{BDC}) = 80^\circ$

Yukarıdaki verilere göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

3.

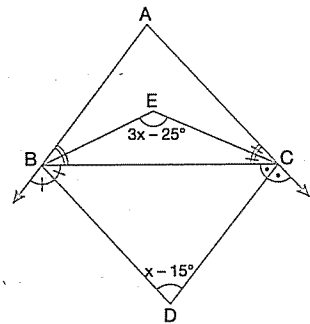


ABC bir üçgen
[BD] ve [CD]
dış açortay
 $m(\widehat{BAC}) = 2x + 40^\circ$
 $m(\widehat{BDC}) = 3x - 10^\circ$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 15 B) 20 C) 25 D) 30 E) 35

4.

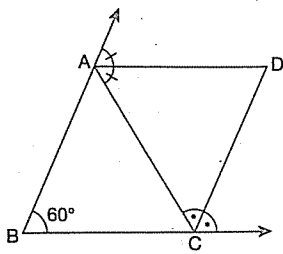


ABC bir üçgen
[BE] ve [EC]
iç açortay
[BD] ve [CD]
dış açortay
 $m(\widehat{BEC}) = 3x - 25^\circ$
 $m(\widehat{BDC}) = x - 15^\circ$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

2.



ABC bir üçgen
[AD] ve [CD]
dış açortay
 $m(\widehat{ABC}) = 60^\circ$

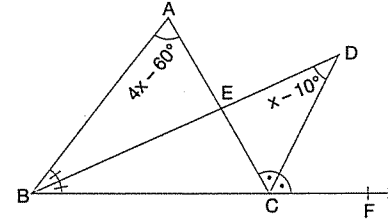
Yukarıdaki verilere göre, $m(\widehat{ADC})$ kaç derecedir?

- A) 30 B) 45 C) 50 D) 60 E) 75

1. A 2. D 3. B 4. E

Üçgende Açortayların Oluşturduğu
Açılar – IV

Örnek



ABC bir üçgen, [BD] ve [CD] açortay
 $m(\widehat{BAC}) = 4x - 60^\circ$, $m(\widehat{BDC}) = x - 10^\circ$
Yukarıdaki verilere göre, x kaç derecedir?

- A) 25 B) 20 C) 15 D) 10 E) 5

Çözüm

Bir iç açortay ile bir
dış açortayın kesiş-
mesiyle oluşan açı;

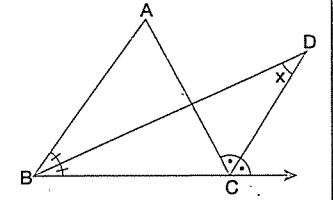
$$x = \frac{m(\widehat{A})}{2} \text{ dir.}$$

$$\text{Buna göre, } x - 10^\circ = \frac{4x - 60^\circ}{2}$$

$$\Rightarrow 2x - 20^\circ = 4x - 60^\circ$$

$$\Rightarrow 2x = 40^\circ$$

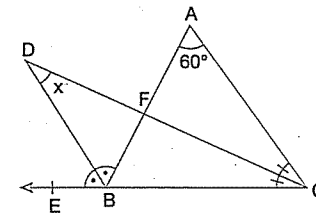
$$\Rightarrow x = 20^\circ \text{ olur.}$$



Cevap B

TEST - 12

1.

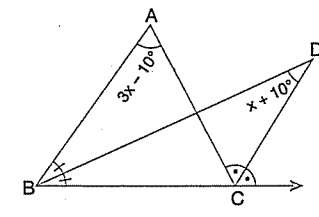


ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BAC}) = 60^\circ$

Yukarıdaki verilere göre, x kaç derecedir?

- A) 15 B) 20 C) 25 D) 30 E) 35

3.

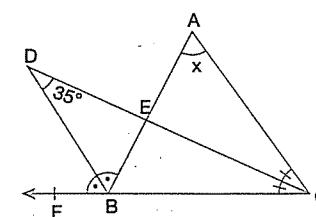


ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BAC}) = 3x - 10^\circ$
 $m(\widehat{BDC}) = x + 10^\circ$

Yukarıdaki verilere göre, $m(\widehat{BDC})$ kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

2.

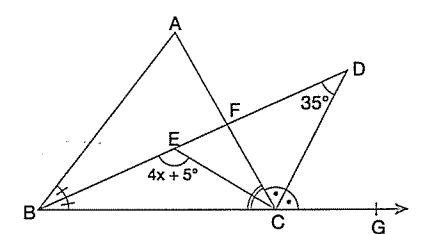


ABC bir üçgen
[BD] ve [CD]
açortay
 $m(\widehat{BDC}) = 35^\circ$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 60 B) 70 C) 80 D) 90 E) 100

4.



ABC bir üçgen, [BE] ve [CE] iç açortay
[CD] dış açortay

$$m(\widehat{BEC}) = 4x + 5^\circ, m(\widehat{BDC}) = 35^\circ$$

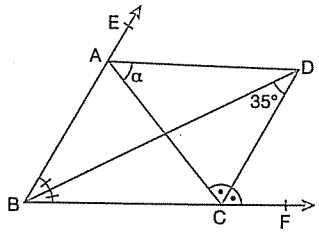
Yukarıdaki verilere göre, x kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

1. D 2. B 3. C 4. B

Üçgende Açortayların Oluşturduğu
Açılar - V

Örnek



ABC bir üçgen
D noktası,
ABC üçgeni-
nin dış teğet
çemberinin
merkezi
 $m(\widehat{BDC}) = 35^\circ$

olduğuna göre, $m(\widehat{DAC}) = \alpha$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

Çözüm

Üçgende iki dış açıortay
ile bir iç açıortay bir nok-
tada kesişirler.

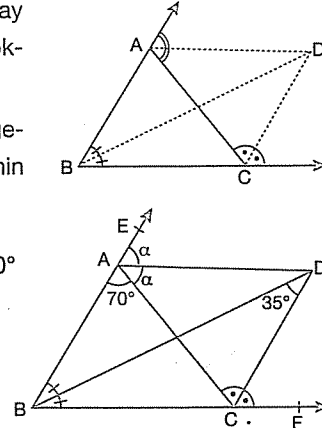
Bu noktaya (D) üçge-
nin dış teğet çemberinin
merkezi denir.

$$m(\widehat{BAC}) = 2 \cdot 35^\circ = 70^\circ$$

$$2\alpha + 70^\circ = 180^\circ$$

$$2\alpha = 110^\circ$$

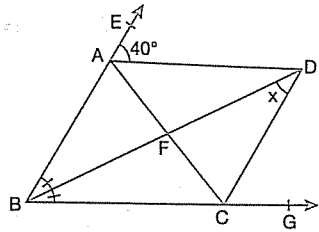
$$\alpha = 55^\circ \text{ olur.}$$



Cevap E

TEST - 13

1.

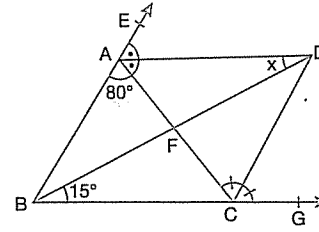


ABC bir üçgen
D noktası
ABC üçgeni-
nin dış teğet
çemberinin
merkezi
 $m(\widehat{EAD}) = 40^\circ$

olduğuna göre, $m(\widehat{BDC}) = x$ kaç derecedir?

- A) 50 B) 55 C) 60 D) 65 E) 70

3.

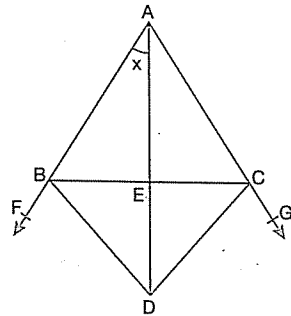


ABC bir üçgen,
D noktası ABC
üçgenin dış
teğet çemberin
merkezi
 $m(\widehat{BAC}) = 80^\circ$
 $m(\widehat{DBC}) = 15^\circ$

olduğuna göre, $m(\widehat{BDA}) = x$ kaç derecedir?

- A) 20 B) 25 C) 30 D) 35 E) 40

2.

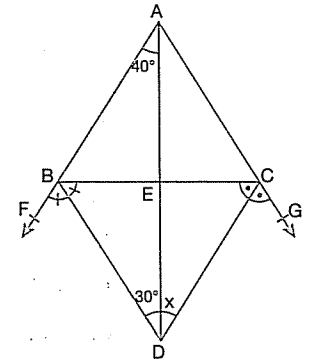


ABC bir üçgen
D, dış teğet çem-
berin merkezi
 $m(\widehat{BDC}) = 70^\circ$

olduğuna göre, $m(\widehat{FAD}) = x$ kaç derecedir?

- A) 15 B) 20 C) 30 D) 40 E) 45

4.



ABC bir üçgen
D noktası ABC
üçgenin dış teğet
çemberin merkezi
 $m(\widehat{FAD}) = 40^\circ$
 $m(\widehat{BDA}) = 30^\circ$

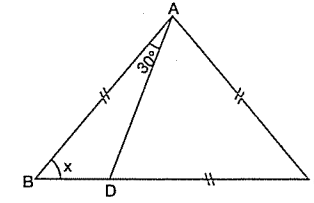
olduğuna göre, $m(\widehat{ADC}) = x$ kaç derecedir?

- A) 60 B) 50 C) 40 D) 30 E) 20

1. A 2. B 3. D 4. E

İkizkenar Üçgen - I

Örnek



ABC bir üçgen, $|AB| = |DC| = |AC|$

$$m(\widehat{BAD}) = 30^\circ$$

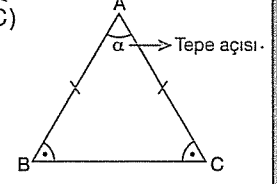
olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

Çözüm

$$|AB| = |AC| \Rightarrow m(\widehat{B}) = m(\widehat{C})$$

$\widehat{B}$ ve $\widehat{C}$ taban açıları

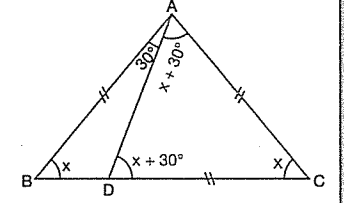


$$|AB| = |AC|$$

$$\Rightarrow m(\widehat{B}) = m(\widehat{C}) = x$$

$$m(\widehat{ADC}) = x + 30^\circ$$

(Dış Açı)



$$|DC| = |AC| \Rightarrow m(\widehat{ADC}) = m(\widehat{DAC}) = x + 30^\circ$$

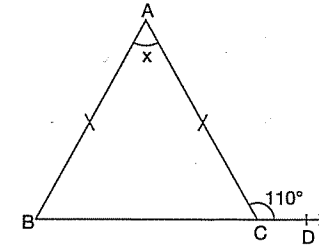
ADC üçgeninde iç açılar toplandığında,

$$x + 30^\circ + x + 30^\circ + x = 180^\circ \Rightarrow x = 40^\circ \text{ olur.}$$

Cevap C

TEST - 14

1.

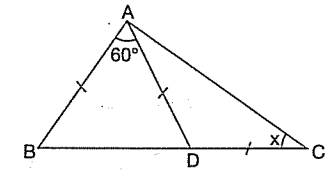


ABC bir üçgen
 $|AB| = |AC|$
 $m(\widehat{ACD}) = 110^\circ$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 75

3.

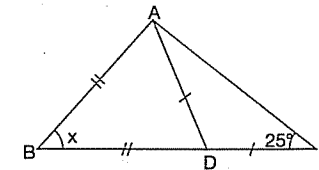


ABC bir üçgen
 $|AB| = |AD| = |DC|$
 $m(\widehat{BAD}) = 60^\circ$

olduğuna göre, $m(\widehat{ACB}) = x$ kaç derecedir?

- A) 30 B) 35 C) 40 D) 45 E) 50

2.

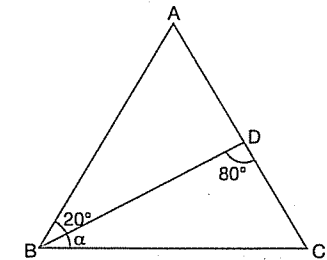


ABC bir üçgen
 $|AB| = |BD|$
 $|AD| = |DC|$
 $m(\widehat{ACB}) = 25^\circ$

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 55 B) 65 C) 70 D) 80 E) 85

4.



ABC bir üçgen
 $|AB| = |AC|$
 $m(\widehat{ABD}) = 20^\circ$
 $m(\widehat{BDC}) = 80^\circ$

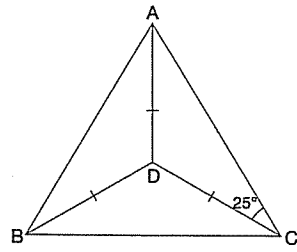
olduğuna göre, $m(\widehat{DBC}) = \alpha$ kaç derecedir?

- A) 30 B) 40 C) 50 D) 60 E) 70

1. A 2. D 3. A 4. B

İkizkenar Üçgen - II

Örnek



ABC bir üçgen
|AD| = |BD| = |DC|
 $m(\widehat{ACD}) = 25^\circ$

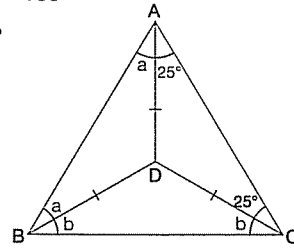
Yukandaki verilere göre, $m(\widehat{ABC})$ kaç derecedir?

- A) 50 B) 55 C) 60 D) 65 E) 70



Çözüm

ABC üçgeninde iç açılar toplamından,
 $a + b + a + 25^\circ + b + 25^\circ = 180^\circ$
 $\Rightarrow 2a + 2b + 50^\circ = 180^\circ$
 $\Rightarrow 2a + 2b = 130^\circ$
 $\Rightarrow a + b = 65^\circ$

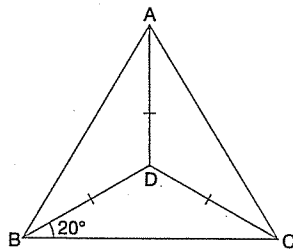


$m(\widehat{ABC}) = a + b = 65^\circ$ olur.

Cevap D

TEST - 15

1.

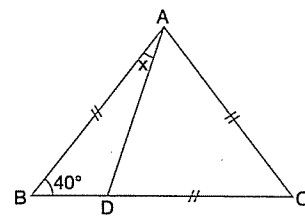


ABC bir üçgen
|AD| = |BD| = |DC|
 $m(\widehat{DBC}) = 20^\circ$

Yukandaki verilere göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

3.

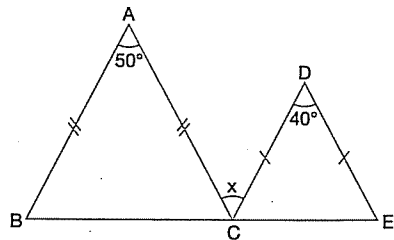


ABC bir üçgen
|AB| = |DC| = |AC|
 $m(\widehat{ABC}) = 40^\circ$

olduğuna göre, $m(\widehat{BAD}) = x$ kaç derecedir?

- A) 45 B) 40 C) 35 D) 30 E) 25

2.



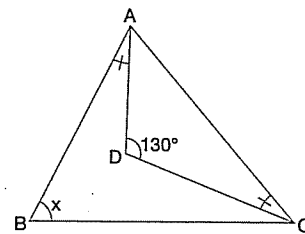
ABC ve CDE birer üçgen, B, C, E doğrusal
|AB| = |AC|, |DC| = |DE|

$m(\widehat{BAC}) = 50^\circ$, $m(\widehat{CDE}) = 40^\circ$

olduğuna göre, $m(\widehat{ACD}) = x$ kaç derecedir?

- A) 45 B) 50 C) 55 D) 60 E) 65

4.



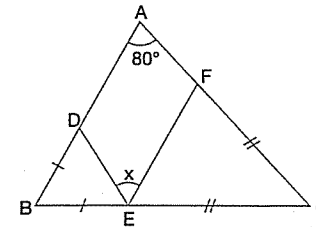
ABC bir üçgen
|AC| = |CB|
 $m(\widehat{BAD}) = m(\widehat{ACD})$
 $m(\widehat{ADC}) = 130^\circ$

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 90 B) 80 C) 70 D) 60 E) 50

İkizkenar Üçgen - III

Örnek



ABC bir üçgen
|BD| = |BE|
|FC| = |EC|
 $m(\widehat{BAC}) = 80^\circ$

olduğuna göre, $m(\widehat{DEF}) = x$ kaç derecedir?

- A) 30 B) 35 C) 40 D) 45 E) 50



Çözüm

$m(\widehat{BDE}) = m(\widehat{BED}) = a$
 $m(\widehat{FEC}) = m(\widehat{EFC}) = b$
alırsak,

$m(\widehat{DBE}) = 180^\circ - 2a$

ve

$m(\widehat{ECF}) = 180^\circ - 2b$ olur.

ABC üçgeninde, $180^\circ - 2a + 180^\circ - 2b + 80^\circ = 180^\circ$

$a + b = 130^\circ$ olur.

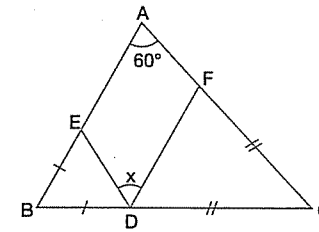
$a + b + x = 180^\circ$

$130^\circ + x = 180^\circ \Rightarrow x = 50^\circ$ olur.

Cevap E

TEST - 16

1.

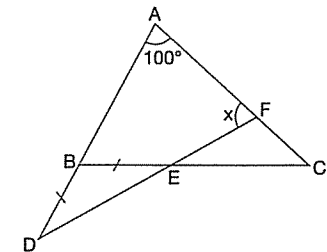


ABC bir üçgen
|BE| = |BD|
|DC| = |FC|
 $m(\widehat{BAC}) = 60^\circ$

olduğuna göre, $m(\widehat{EDF}) = x$ kaç derecedir?

- A) 45 B) 50 C) 60 D) 75 E) 80

3.

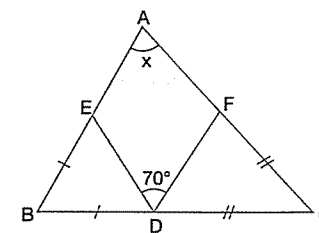


ABC ve ADF
birer üçgen
|BD| = |BE|
|AB| = |AC|
 $m(\widehat{DAC}) = 100^\circ$

olduğuna göre, $m(\widehat{DFA}) = x$ kaç derecedir?

- A) 75 B) 70 C) 65 D) 60 E) 55

2.

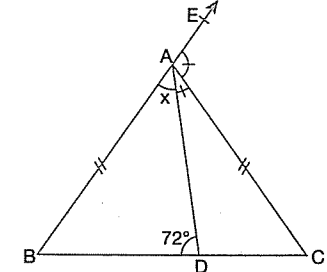


ABC bir üçgen
|BE| = |BD|
|FC| = |DC|
 $m(\widehat{EDF}) = 70^\circ$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

4.



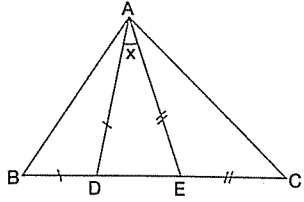
ABC bir üçgen
[AC] açıortay
|AB| = |AC|
 $m(\widehat{ADB}) = 72^\circ$

olduğuna göre, $m(\widehat{BAD}) = x$ kaç derecedir?

- A) 68 B) 72 C) 76 D) 80 E) 84

İkizkenar Üçgen - IV

Örnek



ABC bir üçgen
 $|AD| = |BD|$
 $|AE| = |EC|$
 $m(\widehat{BAC}) = 110^\circ$

Yukarıdaki verilene göre, $m(\widehat{DAE}) = x$ kaç derecedir?

- A) 30 B) 40 C) 50 D) 60 E) 70

Çözüm

$|BD| = |AD|$ ise,
 $m(\widehat{ABD}) = m(\widehat{DAB}) = \alpha$

$|AE| = |EC|$ ise,
 $m(\widehat{EAC}) = m(\widehat{ACE}) = \beta$

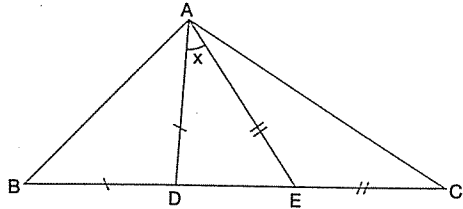
$m(\widehat{BAC}) = 110^\circ \Rightarrow m(\widehat{B}) + m(\widehat{C}) = 180^\circ - 110^\circ$
 $\Rightarrow \alpha + \beta = 70^\circ$

$m(\widehat{BAC}) = 110^\circ \Rightarrow \alpha + \beta + x = 110^\circ$
 $70^\circ + x = 110^\circ \Rightarrow x = 40^\circ$ olur.

Cevap B

TEST - 17

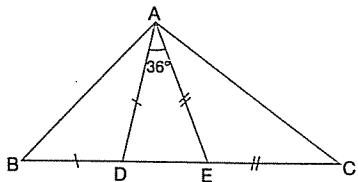
1.



ABC bir üçgen, $|AD| = |BD|$, $|AE| = |EC|$
 $m(\widehat{BAC}) = 108^\circ$
 olduğuna göre, $m(\widehat{DAE}) = x$ kaç derecedir?

- A) 35 B) 36 C) 37 D) 38 E) 39

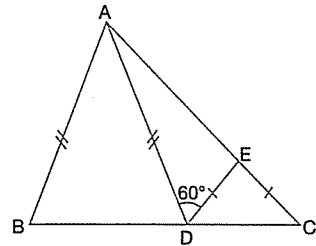
2.



ABC bir üçgen, $|AD| = |BD|$, $|AE| = |EC|$
 $m(\widehat{DAE}) = 36^\circ$
 olduğuna göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 105 B) 106 C) 107 D) 108 E) 109

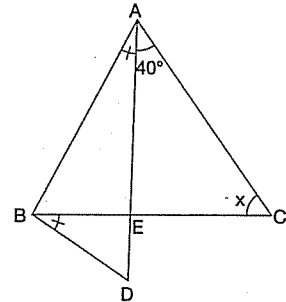
3.



olduğuna göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 40 B) 45 C) 50 D) 55 E) 60

4.



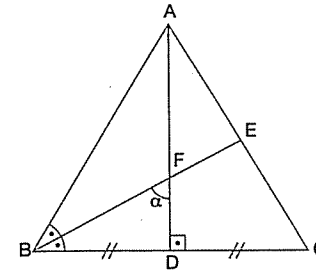
olduğuna göre, $m(\widehat{ACB}) = x$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

1. B 2. D 3. E 4. C

İkizkenar Üçgen - V

Örnek

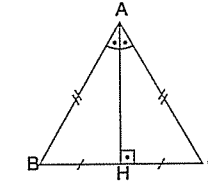


ABC bir üçgen
 $|AD| \perp |BC|$
 $|BE|$ açıortay
 $|BD| = |DC|$
 $m(\widehat{BAC}) = 72^\circ$

olduğuna göre, $m(\widehat{BFD}) = \alpha$ kaç derecedir?

- A) 63 B) 60 C) 56 D) 54 E) 45

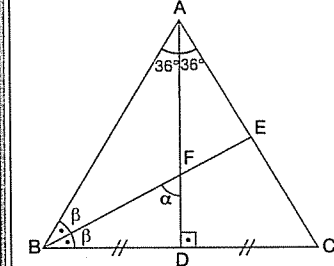
İkizkenar üçgende tabana indirilen dikme hem açıortay, hem de kenarortaydır.



$|AB| = |AC|$
 $|BH| = |HC|$
 $m(\widehat{BAH}) = m(\widehat{HAC})$
 $|AH| \perp |BC|$

Bu dördünden ikisi varsa diğer ikisi de geçerlidir.
 (afacan dörtlülü ☺)

Çözüm



$|AD| \perp |BC|$
 $|BD| = |DC|$ } $\Rightarrow |AD|$ açıortay

$m(\widehat{BAC}) = 72^\circ \Rightarrow m(\widehat{BAD}) = 36^\circ$

ABD üçgeninde,

$90^\circ + 36^\circ + 2\beta = 180^\circ \Rightarrow \beta = 27^\circ$

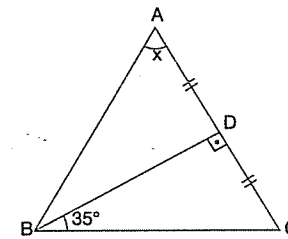
$\alpha = \beta + 36^\circ$ (Dış Açıl)

$\alpha = 27^\circ + 36^\circ = 63^\circ$ olur.

Cevap A

TEST - 18

1.

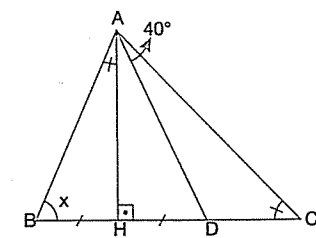


ABC bir üçgen
 $|BD| \perp |AC|$
 $|AD| = |DC|$
 $m(\widehat{CBD}) = 35^\circ$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 75 B) 70 C) 65 D) 60 E) 55

2.

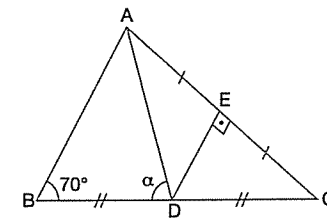


ABC bir üçgen
 $|AH| \perp |BC|$
 $m(\widehat{BAH}) = m(\widehat{HAC})$
 $|BH| = |HD|$
 $m(\widehat{DAC}) = 40^\circ$

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 45 B) 50 C) 60 D) 65 E) 75

3.

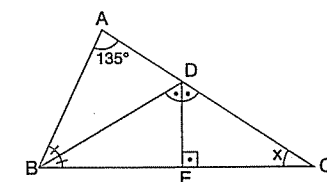


ABC bir üçgen
 $|DE| \perp |AC|$
 $|BD| = |DC|$
 $|AE| = |EC|$
 $m(\widehat{ABC}) = 70^\circ$

olduğuna göre, $m(\widehat{ADB}) = \alpha$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

4.



ABC bir üçgen
 $|DE| \perp |BC|$
 $|BD|$ ve $|DE|$ açıortaylar
 $m(\widehat{BAC}) = 135^\circ$

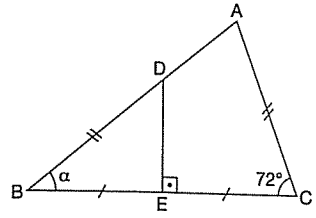
olduğuna göre, $m(\widehat{ACB}) = x$ kaç derecedir?

- A) 15 B) 20 C) 25 D) 30 E) 35

1. E 2. D 3. B 4. A

İkizkenar Üçgen V

Örnek



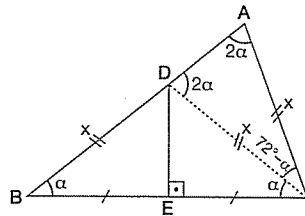
ABC bir üçgen
[DE] ⊥ [BC]
|BE| = |EC|
|BD| = |AC|
 $m(\widehat{ACB}) = 72^\circ$

olduğuna göre, $m(\widehat{ABC}) = \alpha$ kaç derecedir?

- A) 36 B) 40 C) 50 D) 60 E) 64



Çözüm



D ile C yi birleştirirsek
|BE| = |EC|
[DE] ⊥ [BC] } olduğun-
dan BDC ikizkenar
üçgendir.

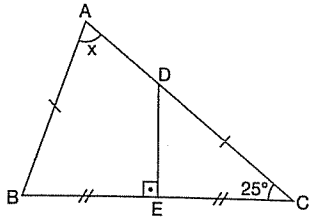
Buna göre, |BD| = |DC| = x dersek,
|BD| = |DC| = |AC| = x olur.

ADC üçgeninde, $m(\widehat{A}) + m(\widehat{D}) + m(\widehat{ACD}) = 180^\circ$
 $2\alpha + 2\alpha + 72^\circ - \alpha = 180^\circ \Rightarrow 3\alpha + 72^\circ = 180^\circ$
 $\Rightarrow 3\alpha = 108^\circ$
 $\Rightarrow \alpha = 36^\circ$ olur.

Cevap A

TEST - 19

1.

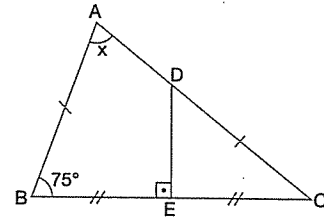


ABC bir üçgen
[DE] ⊥ [BC]
|BE| = |EC|
|AB| = |DC|
 $m(\widehat{ACB}) = 25^\circ$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 40 B) 45 C) 50 D) 55 E) 60

3.

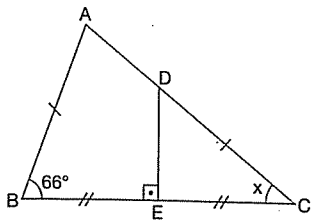


ABC bir üçgen
[DE] ⊥ [BC]
|BE| = |EC|
|AB| = |DC|
 $m(\widehat{ACB}) = 75^\circ$

olduğuna göre, $m(\widehat{BAC}) = x$ kaç derecedir?

- A) 50 B) 60 C) 65 D) 70 E) 75

2.

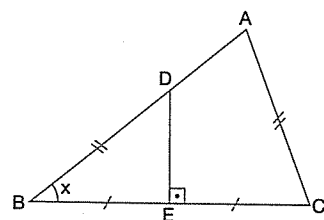


ABC bir üçgen
[DE] ⊥ [BC]
|BE| = |EC|
|AB| = |DC|
 $m(\widehat{ACB}) = 66^\circ$

olduğuna göre, $m(\widehat{ACB}) = x$ kaç derecedir?

- A) 38 B) 40 C) 42 D) 44 E) 46

4.



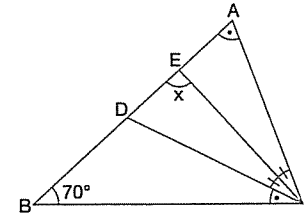
ABC bir üçgen
[DE] ⊥ [BC]
BE	=	EC
DB	=	AC
AB	=	BC

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 32 B) 34 C) 36 D) 40 E) 42

İkizkenar Üçgen VI

Örnek



ABC bir üçgen, [EC] açıortay

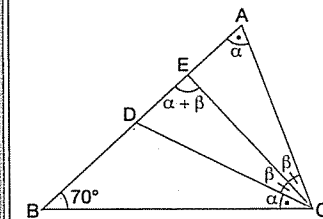
$m(\widehat{CAB}) = m(\widehat{DCB})$, $m(\widehat{ABC}) = 70^\circ$

olduğuna göre, $m(\widehat{BEC}) = x$ kaç derecedir?

- A) 45 B) 50 C) 55 D) 60 E) 65



Çözüm



$m(\widehat{BAC}) = m(\widehat{BCD}) = \alpha$
 $m(\widehat{ACE}) = m(\widehat{ECD}) = \beta$
olsun.

ABC üçgeninde, $m(\widehat{A}) + m(\widehat{B}) + m(\widehat{C}) = 180^\circ$

$\alpha + 70^\circ + \alpha + 2\beta = 180^\circ \Rightarrow 2\alpha + 2\beta = 110^\circ$

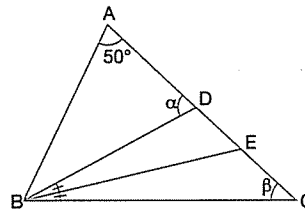
$\Rightarrow \alpha + \beta = 55^\circ$

$m(\widehat{BEC}) = \alpha + \beta$ (dış açı) $\Rightarrow m(\widehat{BEC}) = 55^\circ$ olur.

Cevap C

TEST - 20

1.



ABC bir üçgen

|AB| = |AE|

$m(\widehat{DBE}) = m(\widehat{EBC})$

$m(\widehat{BAC}) = 50^\circ$

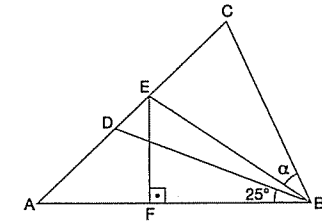
$m(\widehat{BDA}) = \alpha$

$m(\widehat{BCA}) = \beta$

Yukarıdaki verilere göre, $\alpha + \beta$ kaç derecedir?

- A) 110 B) 120 C) 130 D) 140 E) 150

3.



ABC bir üçgen

[EF] ⊥ [AB]

|AF| = |FB|

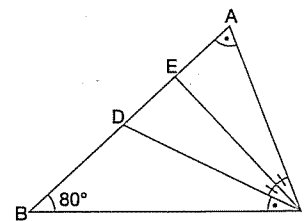
|DC| = |CB|

$m(\widehat{ABD}) = 25^\circ$

olduğuna göre, $m(\widehat{EBC}) = \alpha$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 55

2.



ABC bir üçgen

$m(\widehat{ACE}) = m(\widehat{ECD})$

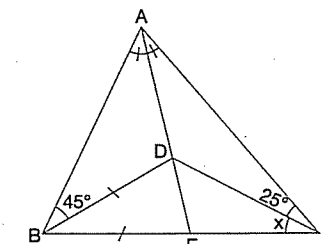
$m(\widehat{BAC}) = m(\widehat{DCB})$

$m(\widehat{ABC}) = 80^\circ$

Yukarıdaki verilere göre, $m(\widehat{BEC})$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

4.



ABC bir üçgen

[AE] açıortay

|BD| = |BE|

$m(\widehat{ABD}) = 45^\circ$

$m(\widehat{ACD}) = 25^\circ$

olduğuna göre, $m(\widehat{DCE}) = x$ kaç derecedir?

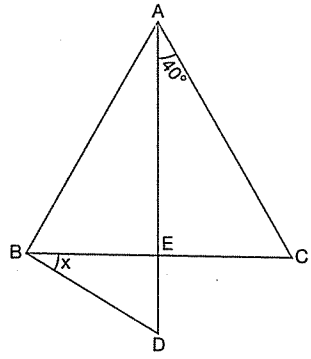
- A) 20 B) 25 C) 30 D) 35 E) 40

1. C 2. A 3. D 4. C

1. C 2. B 3. D 4. A

Eşkenar Üçgen - I

Örnek



ABC bir eşkenar üçgen
|AC| = |AD|
 $m(\widehat{CAD}) = 40^\circ$

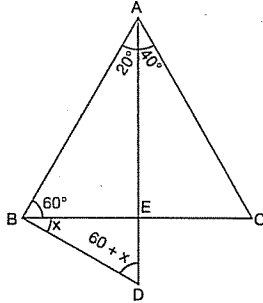
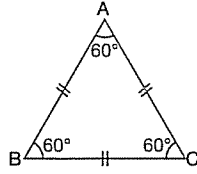
olduğuna göre, $m(\widehat{CBD}) = x$ kaç derecedir?

- A) 40 B) 35 C) 30 D) 25 E) 20



Çözüm

Üç kenar uzunluğu da eşit olan üçgene eşkenar üçgen denir.
Buna göre, açılarn ölçüleri 60° olur.
ABC eşkenar üçgen olduğundan,
|AB| = |AC| = |BC| dir.

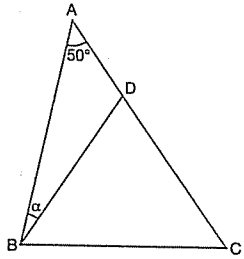


$m(\widehat{BAD}) = 60^\circ - 40^\circ = 20^\circ$
|AB| = |AD| olduğundan,
 $m(\widehat{ABD}) = m(\widehat{ADB}) = x + 60^\circ$
ABD üçgeninde,
 $60^\circ + x + 60^\circ + x + 20^\circ = 180^\circ$
 $\Rightarrow x = 20^\circ$ olur.

Cevap E

TEST - 21

1.

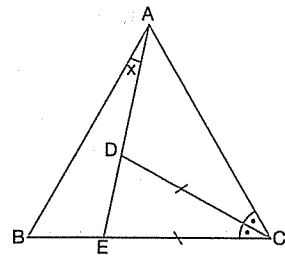


ABC bir üçgen
BDC bir eşkenar üçgen
 $m(\widehat{BAC}) = 50^\circ$

olduğuna göre, $m(\widehat{ABD}) = \alpha$ kaç derecedir?

- A) 10 B) 20 C) 30 D) 40 E) 50

3.

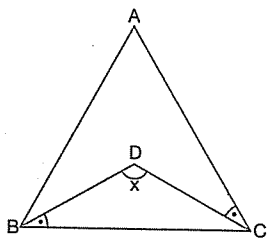


ABC bir eşkenar üçgen
A, D, E doğrusal
[CD] açıortay
|DC| = |EC|

olduğuna göre, $m(\widehat{BAE}) = x$ kaç derecedir?

- A) 35 B) 30 C) 25 D) 20 E) 15

2.

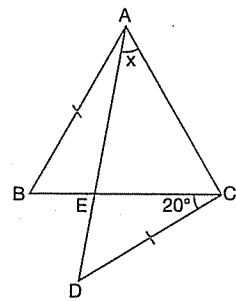


ABC bir eşkenar üçgen
 $m(\widehat{DBC}) = m(\widehat{DCA})$

olduğuna göre, $m(\widehat{BDC}) = x$ kaç derecedir?

- A) 100 B) 105 C) 110 D) 115 E) 120

4.



ABC bir eşkenar üçgen
|AB| = |DC|
 $m(\widehat{DCB}) = 20^\circ$

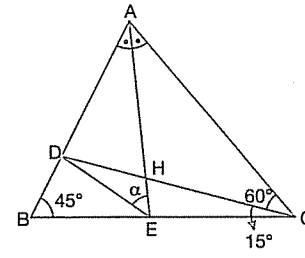
olduğuna göre, $m(\widehat{DAC}) = x$ kaç derecedir?

- A) 30 B) 40 C) 45 D) 50 E) 55

1. A 2. E 3. E 4. D

Eşkenar Üçgen - II

Örnek

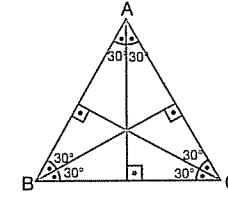


ABC bir üçgen
[AE] açıortay
 $m(\widehat{ACD}) = 60^\circ$
 $m(\widehat{ABE}) = 45^\circ$
 $m(\widehat{DCB}) = 15^\circ$

olduğuna göre, $m(\widehat{AED}) = \alpha$ kaç derecedir?

- A) 50 B) 60 C) 65 D) 70 E) 75

Bir eşkenar üçgende yükseklikler birbirine eşittir. Aynı zamanda bu yükseklikler, açıortay ve kenarortaydır.



$$h_a = h_b = h_c = n_A = n_B = n_C = V_a = V_b = V_c$$



Çözüm

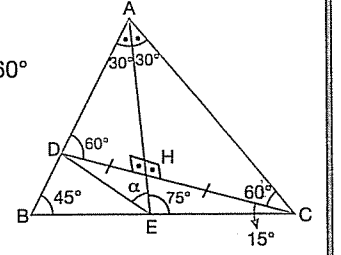
$m(\widehat{ADC}) = 45^\circ + 15^\circ$ (dış açı)
 $m(\widehat{ADC}) = 60^\circ$
 $m(\widehat{ADC}) = m(\widehat{ACD}) = 60^\circ$
 $\Rightarrow m(\widehat{DAC}) = 60^\circ$ olur.

Dolayısıyla ADC eşkenar üçgen olur.

ADC eşkenar üçgen ve [AH] açıortay olduğundan,
[AH] $\perp$ [DC] dir.

$m(\widehat{EHC}) = 90^\circ$ olduğundan, DEC ikizkenar ve
 $m(\widehat{EDH}) = 15^\circ$ |EH| açıortay olur.

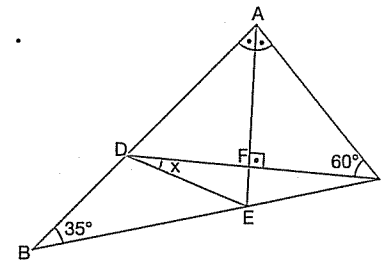
Dolayısıyla $\alpha = 75^\circ$ olur.



Cevap E

TEST - 22

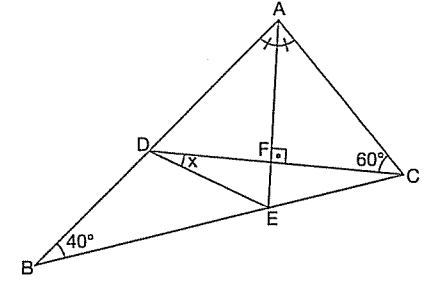
1.



ABC bir üçgen, [AE] açıortay, [AF] $\perp$ [DC]
 $m(\widehat{ACD}) = 60^\circ$, $m(\widehat{ABC}) = 35^\circ$
olduğuna göre, $m(\widehat{CDE}) = x$ kaç derecedir?

- A) 20 B) 25 C) 30 D) 35 E) 40

2.



ABC bir üçgen, [AE] açıortay
[AF] $\perp$ [DC]
|EC| = |DB|

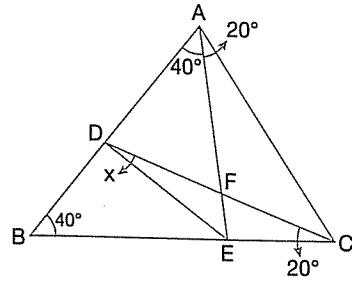
$m(\widehat{ACD}) = 60^\circ$, $m(\widehat{ABC}) = 40^\circ$
olduğuna göre, $m(\widehat{EDC}) = x$ kaç derecedir?

- A) 20 B) 24 C) 28 D) 30 E) 34

1. B 2. A

İkizkenar Üçgen - Eşkenar Üçgen

Örnek



ABC bir üçgen

$$m(\widehat{ABC}) = m(\widehat{BAE}) = 40^\circ$$

$$m(\widehat{CAE}) = m(\widehat{DCB}) = 20^\circ$$

olduğuna göre, $m(\widehat{CDE}) = x$ kaç derecedir?

- A) 10 B) 20 C) 30 D) 40 E) 50

Çözüm

$$m(\widehat{ADC}) = m(\widehat{ABC}) + m(\widehat{DCB})$$

$$m(\widehat{ADC}) = 40^\circ + 20^\circ = 60^\circ$$

ADC eşkenar üçgen çıkar. $|AD| = |AC| = |DC|$ dir.

AEC üçgeninde,

$$m(\widehat{EAC}) = 20^\circ \text{ ve}$$

$$m(\widehat{ACB}) = 80^\circ$$

$$\text{ise, } m(\widehat{AEC}) = 80^\circ$$

olur. Dolayısıyla,

$$|AE| = |AC|$$

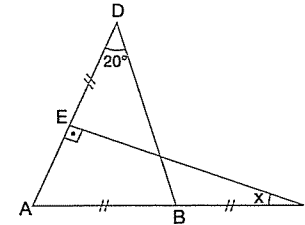
$|AE| = |AD|$ dir. ADE üçgeninde,

$$40^\circ + 60^\circ + x + x + 60^\circ = 180^\circ \Rightarrow x = 10^\circ \text{ olur.}$$

Cevap A

Dik Üçgen (Muhteşem Üçlü)

Örnek



ABD bir üçgen

$$[EC] \perp [AD]$$

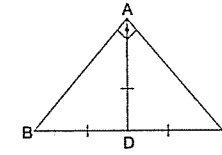
$$|ED| = |AB| = |BC|$$

$$m(\widehat{ADB}) = 20^\circ$$

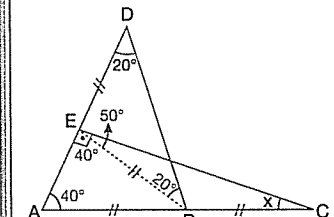
Yukarıdaki verilere göre, $m(\widehat{ECA}) = x$ kaç derecedir?

- A) 40 B) 45 C) 50 D) 55 E) 60

Bir dik üçgende hipotenüse ait kenarortay uzunluğu, hipotenüsün yarısına eşittir. (Muhteşem üçlü)



Çözüm



E ile B yi birleştirelim.

$$m(\widehat{AEC}) = 90^\circ$$

$$|AB| = |BC|$$

olduğundan,

$$|AB| = |BC| = |EB|$$

olur. (Muhteşem üçlü)

Bu durumda BED ikizkenar üçgen olur.

$$|EB| = |ED| \Rightarrow m(\widehat{EBD}) = m(\widehat{EDB}) = 20^\circ$$

$$m(\widehat{AEB}) = 20^\circ + 20^\circ = 40^\circ \text{ (Dış açı)}$$

$$m(\widehat{BEC}) = 90^\circ - 40^\circ = 50^\circ$$

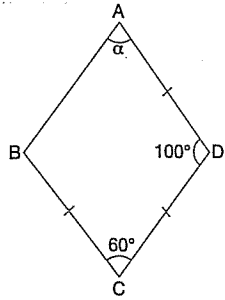
EBC ikizkenar üçgen olduğundan,

$$m(\widehat{BEC}) = m(\widehat{BCE}) \Rightarrow x = 50^\circ \text{ olur.}$$

Cevap C

TEST - 23

1.



ABCD bir dörtgen

$$|AD| = |DC| = |BC|$$

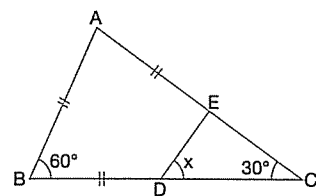
$$m(\widehat{ADC}) = 100^\circ$$

$$m(\widehat{DCB}) = 60^\circ$$

olduğuna göre, $m(\widehat{BAD}) = \alpha$ kaç derecedir?

- A) 50 B) 60 C) 70 D) 80 E) 90

3.



ABC bir üçgen

$$|AB| = |BD| = |AE|$$

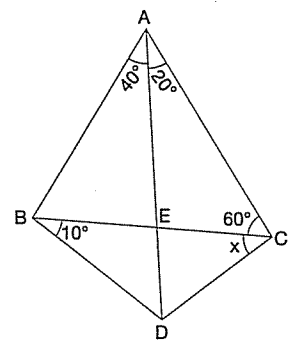
$$m(\widehat{ACB}) = 30^\circ$$

$$m(\widehat{ABC}) = 60^\circ$$

olduğuna göre, $m(\widehat{EDC}) = x$ kaç derecedir?

- A) 60 B) 55 C) 50 D) 45 E) 40

4.



ABC bir üçgen

A, E, D doğrusal

$$m(\widehat{ACB}) = 60^\circ$$

$$m(\widehat{BAD}) = 40^\circ$$

$$m(\widehat{DAC}) = 20^\circ$$

$$m(\widehat{CBD}) = 10^\circ$$

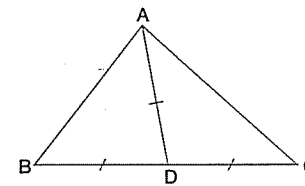
olduğuna göre, $m(\widehat{BCD}) = x$ kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

1. C 2. B 3. D 4. A

TEST - 24

1.



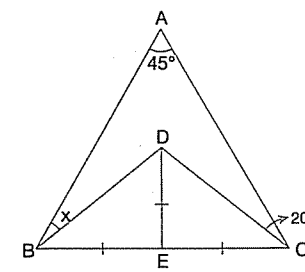
ABC bir üçgen

$$|AD| = |BD| = |DC|$$

olduğuna göre, $m(\widehat{BAC})$ kaç derecedir?

- A) 60 B) 65 C) 75 D) 80 E) 90

2.



ABC bir üçgen

$$|DE| = |BE| = |EC|$$

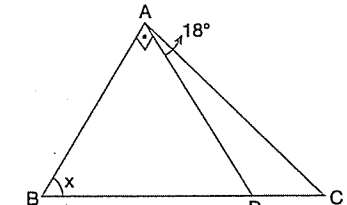
$$m(\widehat{BAC}) = 45^\circ$$

$$m(\widehat{ACD}) = 20^\circ$$

olduğuna göre, $m(\widehat{ABD}) = x$ kaç derecedir?

- A) 15 B) 20 C) 25 D) 30 E) 35

3.



ABC bir üçgen

$$[DA] \perp [BA]$$

$$2|AC| = |BD|$$

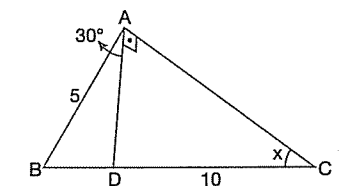
$$m(\widehat{CAD}) = 18^\circ$$

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 24 B) 26 C) 28 D) 30 E) 32

İpucu: ABD dik üçgeninde muhteşem üçlü çelim.

4.



ABC bir üçgen

$$[DA] \perp [AC]$$

$$|DC| = 10 \text{ cm}$$

$$|AB| = 5 \text{ cm}$$

$$m(\widehat{BAD}) = 30^\circ$$

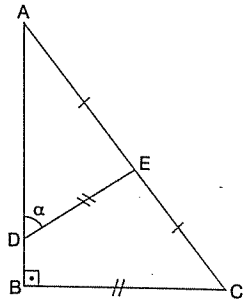
olduğuna göre, $m(\widehat{ACB}) = x$ kaç derecedir?

- A) 35 B) 30 C) 25 D) 20 E) 15

1. E 2. C 3. A 4. D

Orta Taban

Örnek



ABC bir dik üçgen
|AE| = |EC|
|DE| = |BC|

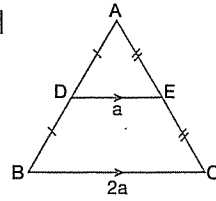
olduğuna göre, $m(\widehat{ADE}) = \alpha$ kaç derecedir?

- A) 60 B) 50 C) 40 D) 30 E) 20



Çözüm

|AD| = |DB| ve |AE| = |EC|
 $\Rightarrow [DE] \parallel [BC]$ ve
 $|DE| = \frac{|BC|}{2}$ dir.

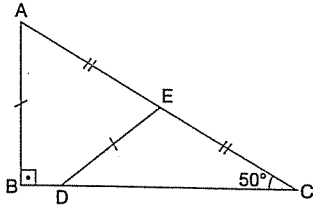


|BC| = |DE| = 2x alalım.
[BC] // [EF] çizersek
[EF] $\perp$ [AB] ve [EF] orta
taban olur. Buna göre,
 $|EF| = \frac{|BC|}{2} = \frac{2x}{2} = x$ olur.
DFE dik üçgeninde,
|EF| = x hipotenüsün yarısı
olduğundan, $m(\widehat{FDE}) = \alpha = 30^\circ$ olur.

Cevap D

TEST - 25

1.

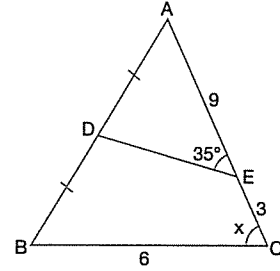


ABC bir dik
üçgen
|AE| = |EC|
|AB| = |DE|
 $m(\widehat{BCA}) = 50^\circ$

Yukarıdaki verilere göre, $m(\widehat{DEC})$ kaç derecedir?

- A) 80 B) 90 C) 100 D) 110 E) 120

3.

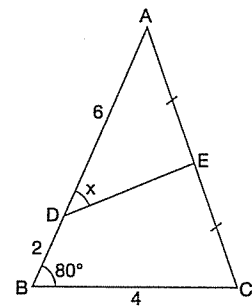


ABC bir üçgen
|AD| = |DB|
|AE| = 9 cm
|BC| = 6 cm
|EC| = 3 cm
 $m(\widehat{AED}) = 35^\circ$

olduğuna göre, $m(\widehat{BCA}) = x$ kaç derecedir?

- A) 35 B) 45 C) 60 D) 70 E) 75

4.



ABC bir üçgen
|AE| = |EC|
|AD| = 6 cm
|BC| = 4 cm
|BD| = 2 cm
 $m(\widehat{ABC}) = 80^\circ$

olduğuna göre, $m(\widehat{ADE}) = x$ kaç derecedir?

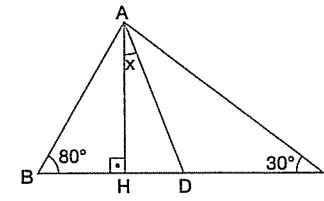
- A) 80 B) 70 C) 60 D) 50 E) 40

sonuç yayınları

1. C 2. E 3. D 4. E

Açıortay ile Yükseklik Arasındaki Açı

Örnek



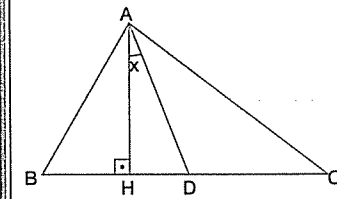
ABC bir üçgen
[AD], ABC
üçgeninin iç
açıortayı
 $m(\widehat{ABC}) = 80^\circ$
 $m(\widehat{ACB}) = 30^\circ$

olduğuna göre, $m(\widehat{HAD}) = x$ kaç derecedir?

- A) 25 B) 30 C) 35 D) 40 E) 45



Çözüm



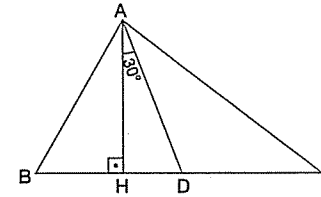
[AH] $\perp$ [BC] ve
[AD], ABC üçge-
ninin iç açıortayı ise,
 $x = \frac{|m(\widehat{B}) - m(\widehat{C})|}{2}$
dir.

Buna göre, $x = \frac{|80 - 30|}{2} \Rightarrow x = 25^\circ$ olur.

Cevap A

TEST - 26

1.

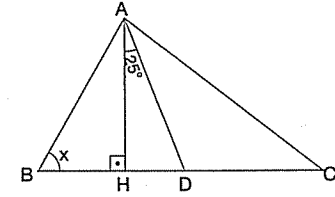


ABC bir üçgen
[AH] $\perp$ [BC]
[AD], ABC
üçgeninin iç
açıortayı
 $m(\widehat{HAD}) = 30^\circ$

olduğuna göre, $m(\widehat{B}) - m(\widehat{C})$ kaç derecedir?

- A) 70 B) 60 C) 50 D) 40 E) 30

3.

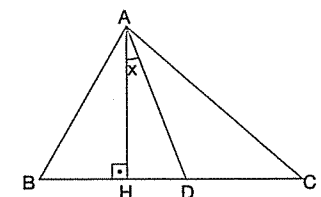


ABC bir üçgen
[AH] $\perp$ [BC]
[AD], ABC
üçgeninin iç
açıortayı
 $m(\widehat{BAC}) = 110^\circ$
 $m(\widehat{HAD}) = 25^\circ$

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derece olabilir?

- A) 50 B) 60 C) 65 D) 70 E) 75

2.

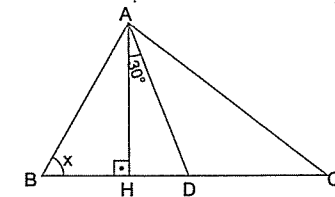


ABC bir üçgen
[AH] $\perp$ [BC]
[AD], ABC üçge-
ninin iç açıortayı
 $m(\widehat{B}) - m(\widehat{C}) = 70^\circ$

olduğuna göre, $m(\widehat{HAD}) = x$ kaç derecedir?

- A) 35 B) 40 C) 45 D) 50 E) 60

4.



ABC üçgeninde
[AH] $\perp$ [BC]
[AD], ABC
üçgeninin iç
açıortayı
|AC| = |BC|
 $m(\widehat{HAD}) = 30^\circ$

olduğuna göre, $m(\widehat{ABC}) = x$ kaç derecedir?

- A) 40 B) 50 C) 60 D) 70 E) 80

sonuç yayınları

1. B 2. A 3. B 4. E

Üçgenin Açıları Arasındaki Bağlılıklar

Örnek

Bir ABC üçgeninde

$$m(\widehat{A}) + m(\widehat{B}) \leq 4m(\widehat{C})$$

olduğuna göre, C açısının ölçüsünün en küçük değeri kaçtır?

- A) 35 B) 36 C) 37 D) 38 E) 39



Çözüm

ABC üçgeninde,

$$m(\widehat{A}) + m(\widehat{B}) + m(\widehat{C}) = 180^\circ$$

$$m(\widehat{A}) + m(\widehat{B}) = 180^\circ - m(\widehat{C})$$

$$m(\widehat{A}) + m(\widehat{B}) \leq 4m(\widehat{C})$$

$$180^\circ - m(\widehat{C}) \leq 4m(\widehat{C})$$

$$180^\circ \leq 5m(\widehat{C})$$

$$36^\circ \leq m(\widehat{C})$$

C açısının en küçük değeri 36° olur.

Cevap B

TEST - 27

1. Bir ABC üçgeninde,

$$m(\widehat{A}) + m(\widehat{B}) = 2m(\widehat{C})$$

olduğuna göre, C açısı kaç derecedir?

- A) 60 B) 75 C) 90 D) 100 E) 120

2. Bir ABC üçgeninde,

$$m(\widehat{A}) + m(\widehat{B}) \leq 5m(\widehat{C})$$

olduğuna göre, C açısının ölçüsünün en küçük değeri kaç derecedir?

- A) 28 B) 29 C) 30 D) 31 E) 32

3. Bir ABC üçgeninde,

$$m(\widehat{A}) + m(\widehat{C}) < 4m(\widehat{B})$$

olduğuna göre, B açısının ölçüsünün en küçük değeri kaç derecedir?

- A) 37 B) 36 C) 35 D) 34 E) 33

4. Bir ABC üçgeninde,

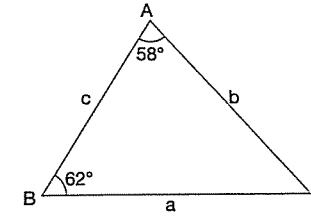
$$\frac{m(\widehat{A}) + m(\widehat{B})}{2} > m(\widehat{C})$$

olduğuna göre, C açısının ölçüsünün en büyük değeri kaç derecedir?

- A) 61 B) 60 C) 59 D) 58 E) 57

Üçgende Açı - Kenar Bağlılıtı - I

Örnek



ABC bir üçgen

$$m(\widehat{ABC}) = 62^\circ$$

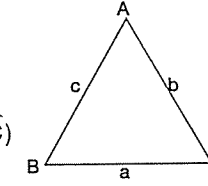
$$m(\widehat{BAC}) = 58^\circ$$

Yukarıdaki verilere göre, $|a - b| + |b - c| + a$ ifadesinin eşiti nedir?

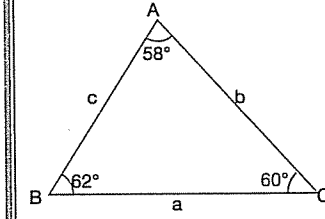
- A) 2b B) a - c C) c + b D) 2b - c E) a

Bir üçgende büyük kenar karşısında büyük açı, küçük kenar karşısında küçük açı bulunur.

$$a < b < c \Leftrightarrow m(\widehat{A}) < m(\widehat{B}) < m(\widehat{C})$$



Çözüm



Şekilde verilen açılarının ölçülerine göre, $m(\widehat{A}) < m(\widehat{C}) < m(\widehat{B})$ dir. Dolayısıyla, $a < c < b$ olur.

$$a < b \Rightarrow a - b < 0 \Rightarrow |a - b| = -a + b$$

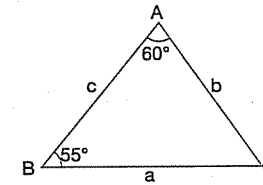
$$c < b \Rightarrow b - c > 0 \Rightarrow |b - c| = b - c$$

$$\text{Buna göre, } |a - b| + |b - c| + a = -a + b + b - c + a = 2b - c \text{ olur.}$$

Cevap D

TEST - 1

- 1.



ABC bir üçgen

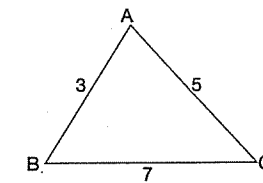
$$m(\widehat{BAC}) = 60^\circ$$

$$m(\widehat{ABC}) = 55^\circ$$

olduğuna göre, üçgenin kenarları arasındaki sıralama aşağıdakilerden hangisidir?

- A) $a > b > c$ B) $a > c > b$ C) $b > c > a$
D) $c > b > a$ E) $c > a > b$

- 2.



ABC bir üçgen

$$|AB| = 3 \text{ cm}$$

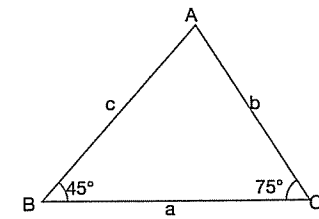
$$|AC| = 5 \text{ cm}$$

$$|BC| = 7 \text{ cm}$$

olduğuna göre, üçgenin açıları arasındaki sıralama aşağıdakilerden hangisidir?

- A) $m(\widehat{A}) > m(\widehat{B}) > m(\widehat{C})$
B) $m(\widehat{A}) > m(\widehat{C}) > m(\widehat{B})$
C) $m(\widehat{B}) > m(\widehat{C}) > m(\widehat{A})$
D) $m(\widehat{C}) > m(\widehat{B}) > m(\widehat{A})$
E) $m(\widehat{C}) > m(\widehat{A}) > m(\widehat{B})$

- 3.



ABC bir üçgen

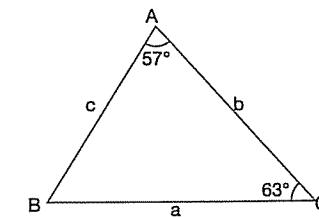
$$m(\widehat{ACB}) = 75^\circ$$

$$m(\widehat{ABC}) = 45^\circ$$

olduğuna göre, $|a - b| + |c - b|$ ifadesinin eşiti aşağıdakilerden hangisidir?

- A) a + c B) 2b C) a + c - 2b
D) 2b - a E) a - c

- 4.



ABC bir üçgen

$$m(\widehat{ACB}) = 63^\circ$$

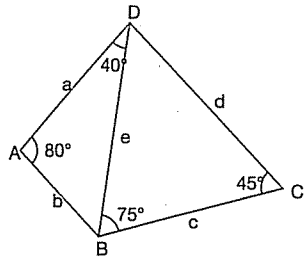
$$m(\widehat{CAB}) = 57^\circ$$

olduğuna göre, $|a - b| + |b - c| + |a - c|$ ifadesinin eşiti aşağıdakilerden hangisidir?

- A) a + c B) 2c - 2a C) a + b + c
D) 2b - a E) b + 2a

Üçgende Açı – Kenar Bağıntısı – II

Örnek

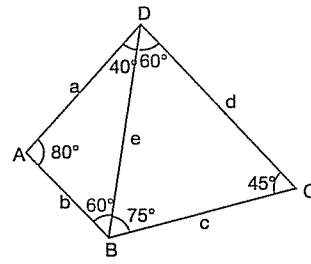


ABCD bir dörtgen
 $m(\widehat{DAB}) = 80^\circ$
 $m(\widehat{DBC}) = 75^\circ$
 $m(\widehat{BCD}) = 45^\circ$
 $m(\widehat{ADB}) = 40^\circ$

Yukarıdaki verilere göre, şeklin en uzun kenarı hangisidir?

- A) a B) b C) c D) d E) e

Çözüm



BDC üçgeninde
 $m(\widehat{C}) < m(\widehat{D}) < m(\widehat{B})$
 $\Rightarrow e < c < d \dots (I)$
 ABD üçgeninde
 $m(\widehat{D}) < m(\widehat{B}) < m(\widehat{A})$
 $\Rightarrow b < a < e \dots (II)$

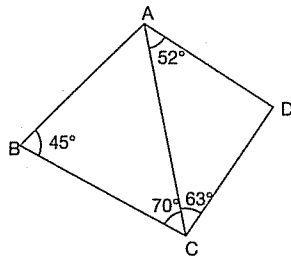
I ve II den, $b < a < e < c < d$ olur.

Dolayısıyla en uzun kenar d olur.

Cevap D

TEST - 2

1.

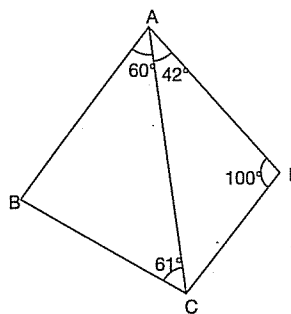


ABCD dörtgen
 $m(\widehat{ACD}) = 63^\circ$
 $m(\widehat{ACB}) = 70^\circ$
 $m(\widehat{ABC}) = 45^\circ$
 $m(\widehat{CAD}) = 52^\circ$

Yukarıdaki verilere göre, en uzun kenar hangisidir?

- A) [AB] B) [AD] C) [AC]
 D) [BC] E) [CD]

2.

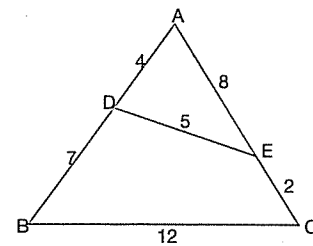


ABCD dörtgen
 $m(\widehat{CAD}) = 42^\circ$
 $m(\widehat{ADC}) = 100^\circ$
 $m(\widehat{ACB}) = 61^\circ$
 $m(\widehat{BAC}) = 60^\circ$

Yukarıdaki verilere göre, en kısa kenar hangisidir?

- A) [AB] B) [AD] C) [AC]
 D) [BC] E) [CD]

3.

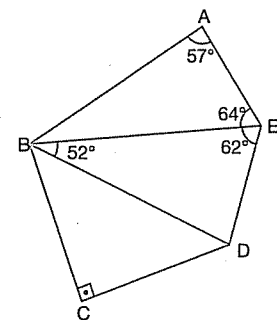


ABC bir üçgen
 $|BC| = 12$ cm
 $|AE| = 8$ cm
 $|BD| = 7$ cm
 $|DE| = 5$ cm
 $|AD| = 4$ cm
 $|EC| = 2$ cm

Yukarıdaki verilere göre, ölçüsü en büyük olan iç açı hangisidir?

- A) $m(\widehat{A})$ B) $m(\widehat{B})$ C) $m(\widehat{C})$
 D) $m(\widehat{D})$ E) $m(\widehat{E})$

4.



ABCDE bir beşgen
 $[BC] \perp [CD]$
 $m(\widehat{BAE}) = 57^\circ$
 $m(\widehat{AEB}) = 64^\circ$
 $m(\widehat{EBD}) = 52^\circ$
 $m(\widehat{BED}) = 62^\circ$

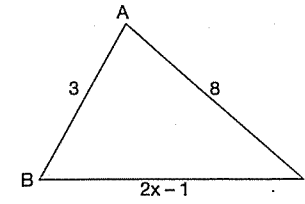
Yukarıdaki verilere göre, en uzun kenar hangisidir?

- A) [AB] B) [BD] C) [BE]
 D) [CD] E) [AE]

1. A 2. B 3. D 4. A

Üçgen Eşitsizliği – I

Örnek



ABC bir üçgen
 $|AC| = 8$ cm
 $|AB| = 3$ cm
 $|BC| = 2x - 1$

Yukarıdaki verilere göre, x in alabileceği tam sayı değerleri toplamı kaçtır?

- A) 6 B) 7 C) 8 D) 9 E) 10

Çözüm

Bir üçgende, bir kenar uzunluğu diğer iki kenarın uzunlukları toplamından küçük, farkının mutlak değerinden büyüktür.

Yani; $|b - c| < a < b + c$

Buna göre, $|8 - 3| < 2x - 1 < 8 + 3$

$$5 < 2x - 1 < 11$$

$$6 < 2x < 12$$

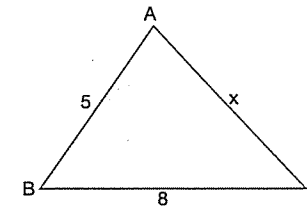
$$3 < x < 6 \text{ olur.}$$

Bu aralıktaki tamsayı değerleri toplamı, $4 + 5 = 9$ olur.

Cevap D

TEST - 3

1.

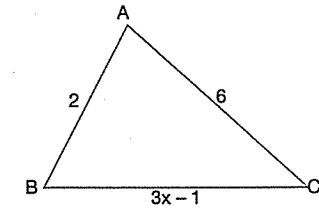


ABC bir üçgen
 $|BC| = 8$ cm
 $|AB| = 5$ cm
 $|AC| = x$

olduğuna göre, x in kaç farklı tamsayı değeri vardır?

- A) 10 B) 9 C) 8 D) 7 E) 6

3.

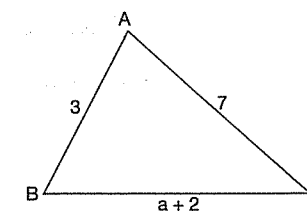


ABC bir üçgen
 $|AC| = 6$ cm
 $|AB| = 2$ cm
 $|BC| = 3x - 1$

olduğuna göre, x in alabileceği tamsayı değeri kaçtır?

- A) 2 B) 3 C) 4 D) 5 E) 6

2.

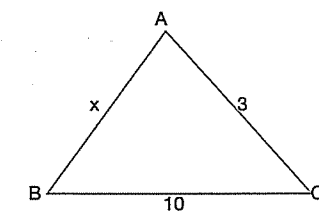


ABC bir üçgen
 $|AC| = 7$ cm
 $|AB| = 3$ cm
 $|BC| = a + 2$

olduğuna göre, a nın alabileceği tamsayı değerlerinin toplamı kaçtır?

- A) 22 B) 23 C) 24 D) 25 E) 26

4.



ABC çeşitkenar bir üçgen
 $|BC| = 10$ cm
 $|AC| = 3$ cm
 $|AB| = x$

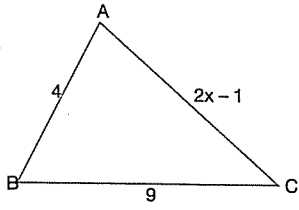
olduğuna göre, x in kaç farklı tamsayı değeri vardır?

- A) 8 B) 7 C) 6 D) 5 E) 4

1. B 2. D 3. A 4. E

Üçgen Eşitsizliği - II

Örnek



ABC bir üçgen
|BC| = 9 cm
|AB| = 4 cm
|AC| = 2x - 1

Yukarıdaki şekilde $m(\widehat{B}) < m(\widehat{A})$ olduğuna göre, x in değer aralığı aşağıdakilerden hangisidir?

- A) (1, 4) B) (3, 5) C) (2, 3)
D) (1, 5) E) (4, 7)



Çözüm

Üçgen eşitsizliğinden, $|9 - 4| < 2x - 1 < 9 + 4$
 $5 < 2x - 1 < 13$
 $6 < 2x < 14$
 $3 < x < 7 \dots (I)$

$m(\widehat{B}) < m(\widehat{A})$ den, $2x - 1 < 9$

$$2x < 10$$

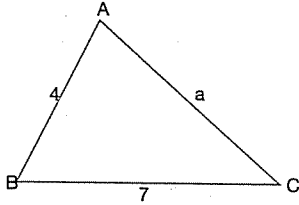
$$x < 5 \dots (II)$$

I ve II den, $\left. \begin{array}{l} 3 < x < 7 \\ x < 5 \end{array} \right\} 3 < x < 5$ olur.

Cevap B

TEST - 4

1.

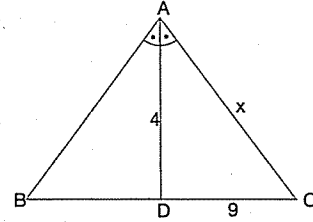


ABC bir üçgen
|BC| = 7 cm
|AB| = 4 cm
|AC| = a

Yukarıdaki şekilde $m(\widehat{B}) < m(\widehat{A})$ olduğuna göre, a nın alabileceği tamsayı değerlerinin toplamı kaçtır?

- A) 15 B) 14 C) 12 D) 7 E) 6

3.

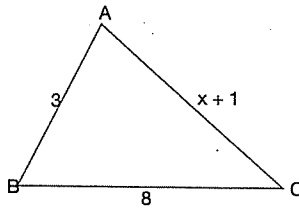


ABC bir üçgen
[AD] açıortay
|DC| = 9 cm
|AD| = 4 cm
|AC| = x

olduğuna göre, x in alabileceği tamsayı değerlerinin toplamı kaçtır?

- A) 22 B) 24 C) 27 D) 30 E) 33

2.

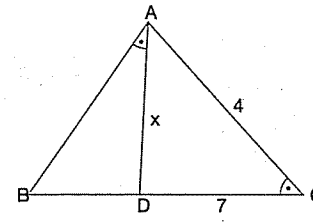


ABC bir üçgen
|BC| = 8 cm
|AB| = 3 cm
|AC| = x + 1

Yukarıdaki şekilde $m(\widehat{B}) < m(\widehat{A})$ olduğuna göre, x in kaç farklı tamsayı değeri vardır?

- A) 5 B) 4 C) 3 D) 2 E) 1

4.



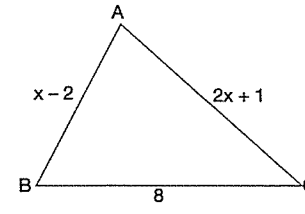
ABC bir üçgen
 $m(\widehat{BAD}) = m(\widehat{BCA})$
|DC| = 7 cm
|AC| = 4 cm
|AD| = x

olduğuna göre, x in değer aralığı aşağıdakilerden hangisidir?

- A) (2, 4) B) (3, 4) C) (4, 7)
D) (3, 7) E) (2, 11)

Üçgen Eşitsizliği - III

Örnek



ABC bir üçgen
|BC| = 8 cm
|AC| = 2x + 1
|AB| = x - 2
 $m(\widehat{B}) < m(\widehat{A})$

Yukarıdaki verilere göre, x in değer aralığı aşağıdakilerden hangisidir?

- A) (2, 4) B) $(\frac{3}{2}, 7)$ C) (5, 7)
D) (4, 9) E) $(3, \frac{7}{2})$



Çözüm

Üçgen eşitsizliğinden,
 $|(2x + 1) - (x - 2)| < 8 < 2x + 1 + x - 2$
 $x + 3 < 8 < 3x - 1$

$$x + 3 < 8 \quad 8 < 3x - 1$$

$$x < 8 - 3 \quad 9 < 3x$$

$$x < 5 \quad 3 < x \dots (I)$$

$m(\widehat{B}) < m(\widehat{A})$ dan, $2x + 1 < 8$

$$2x < 7$$

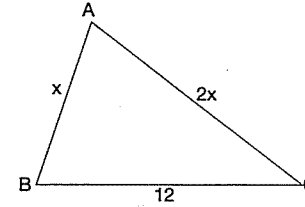
$$x < \frac{7}{2} \dots (II)$$

I ve II den, $3 < x < \frac{7}{2}$ olur.

Cevap E

TEST - 5

1.

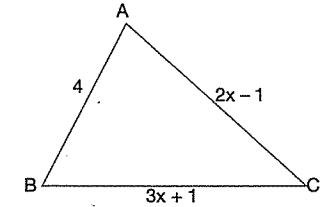


ABC bir üçgen
|BC| = 12 cm
|AC| = 2x
|AB| = x

olduğuna göre, x in alabileceği kaç farklı tamsayı değeri vardır?

- A) 4 B) 5 C) 6 D) 7 E) 8

3.

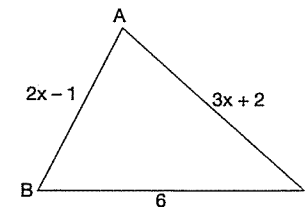


ABC bir üçgen
|AB| = 4 cm
|AC| = 2x - 1
|BC| = 3x + 1

Yukarıdaki verilere göre, x in alabileceği kaç farklı tamsayı değeri vardır?

- A) 5 B) 4 C) 3 D) 2 E) 1

2.

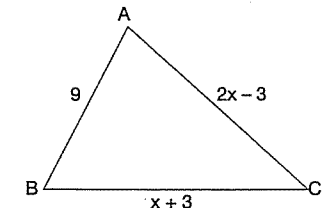


ABC bir üçgen
|BC| = 6 cm
|AC| = 3x + 2
|AB| = 2x - 1

olduğuna göre, x in değer aralığı aşağıdakilerden hangisidir?

- A) (1, 3) B) (1, 4) C) (2, 7)
D) (3, 8) E) (5, 8)

4.



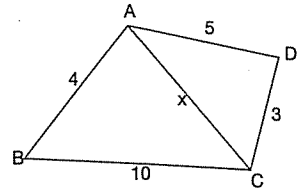
ABC bir üçgen
|AB| = 9 cm
|AC| = 2x - 3
|BC| = x + 3

Yukarıdaki şekilde, $m(\widehat{C}) > m(\widehat{A}) > m(\widehat{B})$ olduğuna göre, x in en büyük tamsayı değeri kaçtır?

- A) 6 B) 5 C) 4 D) 3 E) 2

Üçgen Eşitsizliği - IV

Örnek



ABCD bir dörtgen

$$\begin{aligned} |AB| &= 4 \text{ cm} \\ |BC| &= 10 \text{ cm} \\ |AD| &= 5 \text{ cm} \\ |DC| &= 3 \text{ cm} \\ |AC| &= x \end{aligned}$$

Yukarıdaki verilere göre, x in tamsayı değeri kaçtır?

- A) 6 B) 7 C) 8 D) 9 E) 10



Çözüm

ABC üçgeninde,

$$|10 - 4| < x < 10 + 4$$

$$6 < x < 14$$

ACD üçgeninde,

$$|5 - 3| < x < 5 + 3$$

$$2 < x < 8$$

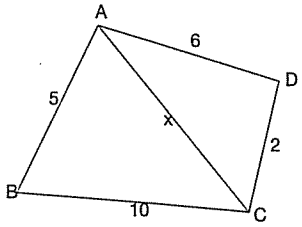
$$\left. \begin{aligned} 6 < x < 14 \\ 2 < x < 8 \end{aligned} \right\} \Rightarrow 6 < x < 8$$

O halde, x in tamsayı değeri 7 olur.

Cevap B

TEST - 6

1.



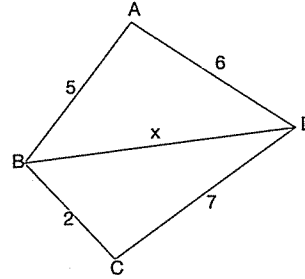
ABCD bir dörtgen

$$\begin{aligned} |AB| &= 5 \text{ cm} \\ |BC| &= 10 \text{ cm} \\ |AD| &= 6 \text{ cm} \\ |DC| &= 2 \text{ cm} \\ |AC| &= x \end{aligned}$$

olduğuna göre, x in alabileceği tamsayı değerleri toplamı kaçtır?

- A) 11 B) 12 C) 13 D) 14 E) 15

3.



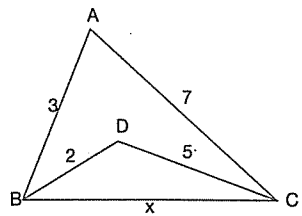
ABCD bir dörtgen

$$\begin{aligned} |AB| &= 5 \text{ cm} \\ |AD| &= 6 \text{ cm} \\ |BC| &= 2 \text{ cm} \\ |CD| &= 7 \text{ cm} \\ |BD| &= x \end{aligned}$$

olduğuna göre, x kaç farklı tamsayı değeri alır?

- A) 3 B) 4 C) 5 D) 6 E) 7

2.



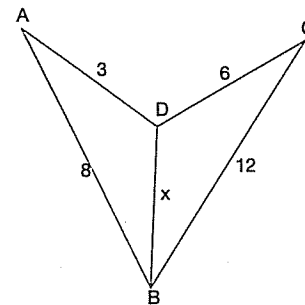
ABC bir üçgen

$$\begin{aligned} |AB| &= 3 \text{ cm} \\ |AC| &= 7 \text{ cm} \\ |DB| &= 2 \text{ cm} \\ |DC| &= 5 \text{ cm} \\ |BC| &= x \end{aligned}$$

olduğuna göre, x kaç farklı tamsayı değeri alır?

- A) 2 B) 3 C) 4 D) 5 E) 6

4.



ABCD bir dörtgen

$$\begin{aligned} |AB| &= 8 \text{ cm} \\ |AD| &= 3 \text{ cm} \\ |DC| &= 6 \text{ cm} \\ |BC| &= 12 \text{ cm} \\ |BD| &= x \end{aligned}$$

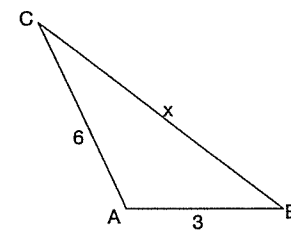
olduğuna göre, x kaç farklı tamsayı değeri alır?

- A) 8 B) 7 C) 6 D) 5 E) 4

1. C 2. A 3. A 4. E

Üçgen Eşitsizliği - V

Örnek



ABC bir üçgen

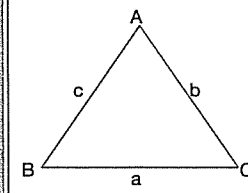
$$\begin{aligned} |CA| &= 6 \text{ cm} \\ |AB| &= 3 \text{ cm} \\ |CB| &= x \end{aligned}$$

Yukarıdaki şekilde $m(\widehat{A}) > 90^\circ$ olduğuna göre, x in alabileceği tamsayı değerlerin toplamı kaçtır?

- A) 30 B) 25 C) 20 D) 15 E) 10



Çözüm



$$m(\widehat{A}) > 90^\circ \Rightarrow a^2 > b^2 + c^2$$

$$m(\widehat{A}) < 90^\circ \Rightarrow a^2 < b^2 + c^2$$

$$m(\widehat{A}) > 90^\circ \Rightarrow x^2 > 3^2 + 6^2$$

$$\Rightarrow x^2 > 9 + 36$$

$$\Rightarrow x^2 > 45$$

$$x > 6, \dots \dots \text{I}$$

$$6 - 3 < x < 6 + 3$$

$$3 < x < 9, \dots \dots \text{II}$$

I ve II den

$$3 < x < 9 \Rightarrow 6 < x < 9$$

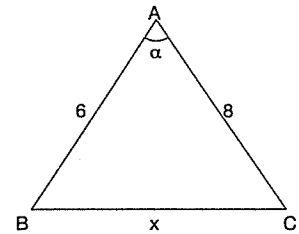
$$x > 6, \dots \dots \Rightarrow 6 < x < 9$$

x in bu aralıktaki tamsayı değerleri 7 ve 8 dir.
7 + 8 = 15 olur.

Cevap D

TEST - 7

1.



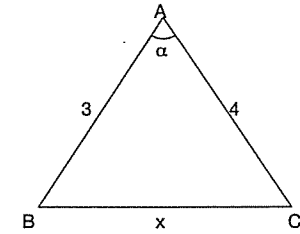
ABC bir üçgen

$$\begin{aligned} |AB| &= 6 \text{ cm} \\ |AC| &= 8 \text{ cm} \\ m(\widehat{BAC}) &= \alpha \\ |BC| &= x \end{aligned}$$

Yukarıdaki şekilde $\alpha > 90^\circ$ olduğuna göre, x in alabileceği tamsayı değerlerin toplamı kaçtır?

- A) 36 B) 34 C) 32 D) 30 E) 28

3.



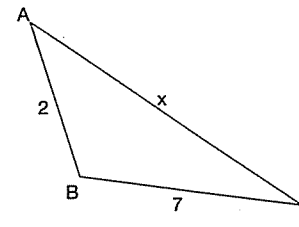
ABC bir üçgen

$$\begin{aligned} |AB| &= 3 \text{ cm} \\ |AC| &= 4 \text{ cm} \\ m(\widehat{BAC}) &= \alpha \\ |BC| &= x \end{aligned}$$

Yukarıdaki şekilde $\alpha < 90^\circ$ olduğuna göre, x in alabileceği tamsayı değerlerin toplamı kaçtır?

- A) 7 B) 8 C) 9 D) 10 E) 11

2.



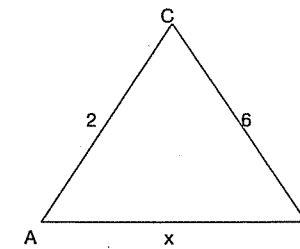
ABC bir üçgen

$$\begin{aligned} |AB| &= 2 \text{ cm} \\ |BC| &= 7 \text{ cm} \\ |AC| &= x \end{aligned}$$

Yukarıdaki şekilde $m(\widehat{B}) > 90^\circ$ olduğuna göre, x kaç farklı tamsayı değeri alır?

- A) 5 B) 4 C) 3 D) 2 E) 1

4.



ABC bir üçgen

$$\begin{aligned} |AC| &= 2 \text{ cm} \\ |CB| &= 6 \text{ cm} \\ |AB| &= x \end{aligned}$$

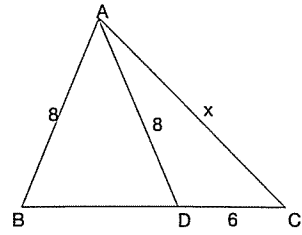
Yukarıdaki şekilde $m(\widehat{C}) < 90^\circ$ olduğuna göre, x in alabileceği tamsayı değerlerin toplamı kaçtır?

- A) 9 B) 10 C) 11 D) 12 E) 13

1. A 2. E 3. C 4. C

Üçgen Eşitsizliği - VI

Örnek



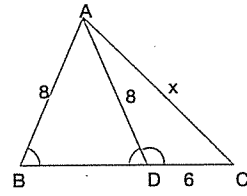
ABC bir üçgen

$$|AB| = |AD| = 8 \text{ cm}, |DC| = 6 \text{ cm}, |AC| = x$$

Yukarıdaki verilene göre, x in alabileceği tam sayı değerleri toplamı kaçtır?

- A) 18 B) 22 C) 28 D) 30 E) 36

Çözüm



ABD üçgeni ikizkenar olduğundan $\widehat{B}$ ve $\widehat{D}$ açıları dar açıdır. Dolayısıyla $\widehat{ADC}$ geniş açıdır.

$$m(\widehat{ADC}) > 90^\circ \Rightarrow x^2 > 6^2 + 8^2 \Rightarrow x^2 > 36 + 64 \Rightarrow x^2 > 100 \Rightarrow x > 10, \dots I$$

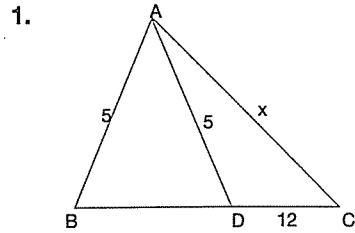
$$\text{Üçgen eşitsizliğinden, } 8 - 6 < x < 6 + 8 \Rightarrow 2 < x < 14, \dots II$$

$$I \text{ ve } II \text{ den, } \left. \begin{array}{l} x > 10 \\ 2 < x < 14 \end{array} \right\} \Rightarrow 10 < x < 14$$

Bu aralıktaki x in tam sayı değerleri, 11, 12, 13 tür. $11 + 12 + 13 = 36$ olur.

Cevap E

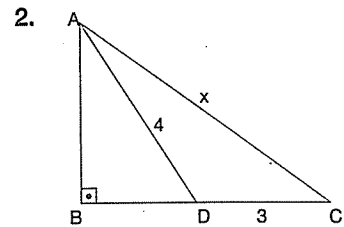
TEST - 8



ABC bir üçgen
|AB| = |AD| = 5 cm
|DC| = 12 cm
|AC| = x

Yukarıdaki verilene göre, x in alabileceği kaç farklı tam sayı değeri vardır?

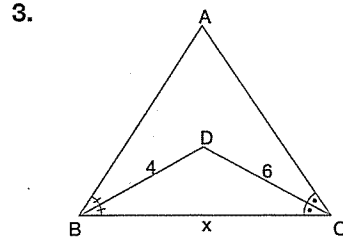
- A) 2 B) 3 C) 4 D) 5 E) 6



ABC bir dik üçgen
|AB| $\perp$ |BC|
|AD| = 4 cm
|DC| = 3 cm
|AC| = x

Yukarıdaki verilene göre, x in tam sayı değeri kaçtır?

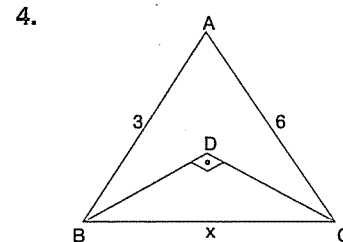
- A) 5 B) 6 C) 7 D) 8 E) 9



ABC bir üçgen
[BD] ve [DC]
açıortay
|BD| = 4 cm
|DC| = 6 cm
|BC| = x

Yukarıdaki verilene göre, x in alabileceği tam sayı değerleri toplamı kaçtır?

- A) 17 B) 18 C) 19 D) 20 E) 21



ABC bir üçgen
[BD] $\perp$ [DC]
|AB| = 3 cm
|AC| = 6 cm
|BC| = x

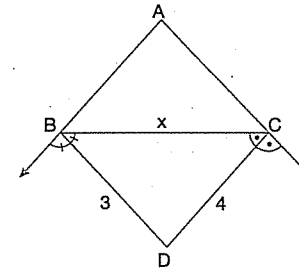
Yukarıdaki verilene göre, x in alabileceği tam sayı değerleri toplamı kaçtır?

- A) 18 B) 17 C) 16 D) 15 E) 14

1. B 2. B 3. A 4. D

Üçgen Eşitsizliği - VII

Örnek

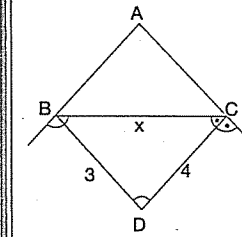


ABC bir üçgen
[BD] ve [CD]
dış açıortay
|BD| = 3 cm
|DC| = 4 cm
|BC| = x

Yukarıdaki verilene göre, x in alabileceği en büyük tam sayı değeri kaçtır?

- A) 4 B) 5 C) 6 D) 7 E) 8

Çözüm



Şekilde,
 $m(\widehat{D}) = 90^\circ - \frac{m(\widehat{A})}{2}$
olduğundan $m(\widehat{D}) < 90^\circ$ dir.

$$\text{Buna göre, } x^2 < 3^2 + 4^2 \Rightarrow x^2 < 9 + 16 \Rightarrow x^2 < 25 \Rightarrow x < 5 \dots I$$

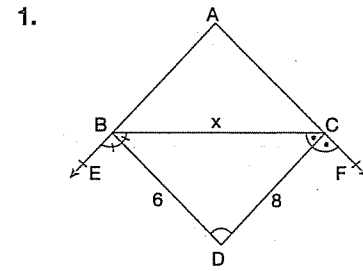
$$|4 - 3| < x < 4 + 3 \Rightarrow 1 < x < 7 \dots II$$

I ve II den $1 < x < 5$ olur.

Buna göre, x in en büyük tam sayı değeri 4 tür.

Cevap A

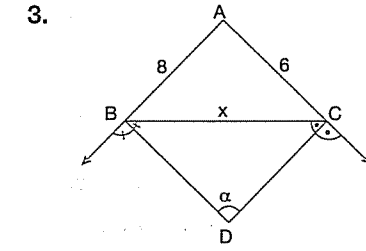
TEST - 9



ABC bir üçgen
[BD] ve [CD]
dış açıortay
|BD| = 6 cm
|DC| = 8 cm
|BC| = x

Yukarıdaki verilene göre, x in alabileceği en büyük tam sayı değeri kaçtır?

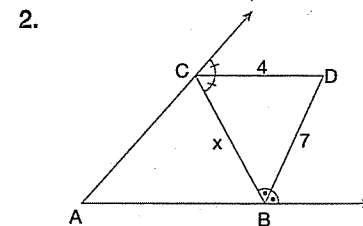
- A) 7 B) 8 C) 9 D) 10 E) 11



ABC bir üçgen
[BD] ve [CD]
dış açıortay
|AB| = 8 cm
|AC| = 6 cm
|BC| = x

Yukarıdaki verilene göre, $\alpha > 45^\circ$ olduğuna göre, x in alabileceği kaç farklı tam sayı değeri vardır?

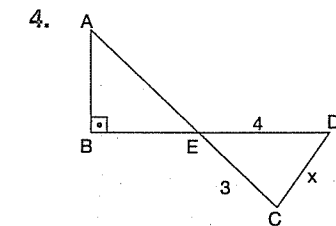
- A) 10 B) 9 C) 8 D) 7 E) 6



ABC bir üçgen
[BD] ve [CD]
dış açıortay
|BD| = 7 cm
|DC| = 4 cm
|CB| = x

Yukarıdaki verilene göre, x in alabileceği en büyük tam sayı değeri kaçtır?

- A) 8 B) 9 C) 10 D) 11 E) 12



ABE bir dik üçgen
|AB| $\perp$ |BD|
A, E, C doğrusal
|ED| = 4 cm
|EC| = 3 cm
|DC| = x

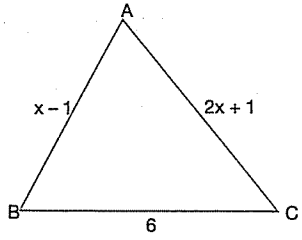
Yukarıdaki verilene göre, x in alabileceği kaç tane tam sayı değeri vardır?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. C 2. A 3. D 4. C

Üçgen Eşitsizliği – VIII

Örnek

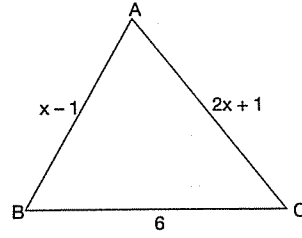


ABC bir üçgen
|BC| = 6 cm
|AB| = x - 1
|AC| = 2x + 1
x ∈ R

Yukarıdaki verilene göre, Ç(ABC) nin en büyük değeri kaçtır?

- A) 13 B) 14 C) 15 D) 16 E) 17

Çözüm



Üçgen eşitsizliğinden,
 $x + 2 < 6 < 3x$
 $x < 4$ ve $6 < 3x$
 $x < 4$ ve $2 < x$
 $2 < x < 4$

$$\text{Ç}(\widehat{ABC}) = 2x + 1 + x - 1 + 6$$

$$\text{Ç}(\widehat{ABC}) = 3x + 6 \quad x \in R \text{ olduğundan}$$

Uyarı: $x \in Z$ olsaydı aralıktan tamsayı değeri vererek sonuca ulaşırdık.

$$2 < x < 4 \Rightarrow 3 \cdot 2 < 3 \cdot x < 3 \cdot 4$$

$$\Rightarrow 6 < 3x < 12$$

$$\Rightarrow 6 + 6 < 3x + 6 < 12 + 6$$

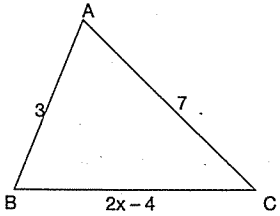
$$\Rightarrow 12 < \text{Ç}(\widehat{ABC}) < 18$$

Buna göre, ABC üçgenin çevresinin en büyük tamsayı değeri 17 olur.

Cevap E

TEST - 10

1.

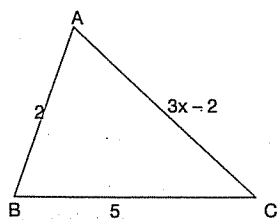


ABC bir üçgen
|AC| = 7 cm
|AB| = 3 cm
|BC| = 2x - 4
x ∈ R

Yukarıdaki verilene göre, Ç(ABC) nin alabileceği en büyük tamsayı değeri kaçtır?

- A) 19 B) 18 C) 17 D) 16 E) 15

2.

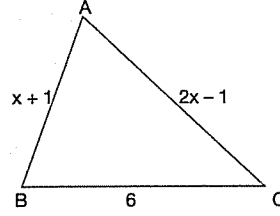


ABC bir üçgen
|AB| = 2 cm
|BC| = 5 cm
|AC| = 3x - 2
x ∈ Z

Yukarıdaki verilene göre, Ç(ABC) nin alabileceği en büyük tamsayı değeri kaçtır?

- A) 15 B) 14 C) 13 D) 12 E) 11

3.

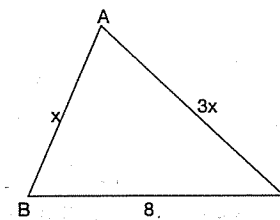


ABC bir üçgen
|BC| = 6 cm
|AB| = x + 1
|AC| = 2x - 1
x ∈ R

Yukarıdaki verilene göre, |AC| nin alabileceği en büyük tamsayı değeri kaçtır?

- A) 10 B) 11 C) 12 D) 13 E) 14

4.



ABC bir üçgen
|BC| = 8 cm
|AB| = x
|AC| = 3x
x ∈ Z

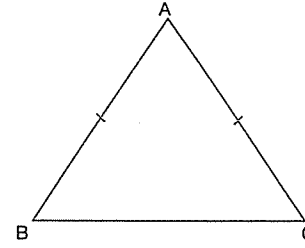
Yukarıdaki verilene göre, Ç(ABC) nin alabileceği en büyük tamsayı değeri kaçtır?

- A) 19 B) 20 C) 21 D) 23 E) 25

1. A 2. E 3. E 4. B

Üçgen Eşitsizliği – IX

Örnek

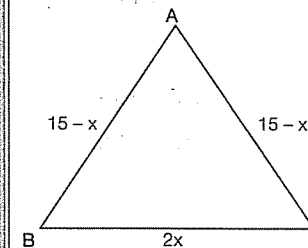


Çevresi 30 br olan ABC üçgenin kenar uzunlukları birer tamsayıdır.

|AB| = |AC| olduğuna göre, |BC| nin en büyük tamsayı değeri kaç br dir?

- A) 15 B) 14 C) 13 D) 12 E) 11

Çözüm



|BC| = 2x alırsak,
|AB| = |AC| = 15 - x
olur.

Üçgen eşitsizliğinden,

$$|(15 - x) - (15 - x)| < 2x < 15 - x + 15 - x$$

$$0 < 2x < 30 - 2x \Rightarrow 4x < 30 \text{ olur.}$$

|BC| = 2x < 15 ise, |BC| nin alabileceği en büyük tamsayı değeri 14 olur.

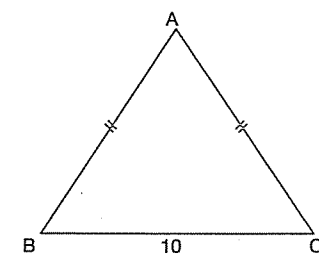
Cevap B

TEST - 11

1. Kenar uzunlukları tamsayı, çevresi 20 cm olan bir ikizkenar üçgenin, eşit olan kenarları kaç farklı değer alabilir?

- A) 1 B) 2 C) 3 D) 4 E) 5

3.

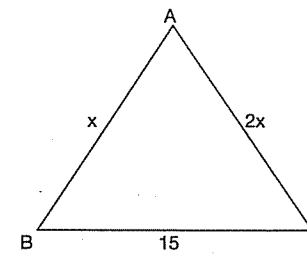


ABC bir ikizkenar üçgen
|AB| = |AC|
|BC| = 10 cm

Yukarıdaki verilene göre, Ç(ABC) nin alabileceği en küçük tamsayı değeri kaçtır?

- A) 20 B) 21 C) 23 D) 24 E) 25

2.

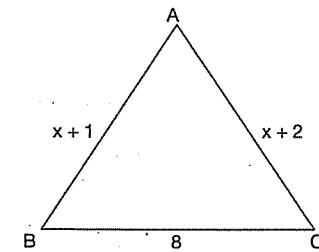


ABC bir üçgen
|BC| = 15 cm
|AB| = x
|AC| = 2x

Yukarıda verilen ABC üçgenin çevresi 45 cm den küçük olduğuna göre, x in alabileceği en büyük ve en küçük tamsayı değeri toplamı kaçtır?

- A) 15 B) 16 C) 17 D) 18 E) 20

4.



ABC bir üçgen
|BC| = 8 cm
|AB| = x + 1
|AC| = x + 2

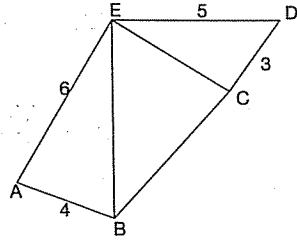
Yukarıdaki verilene göre, Ç(ABC) nin alabileceği en küçük tamsayı değeri kaçtır?

- A) 15 B) 16 C) 17 D) 18 E) 19

1. D 2. A 3. B 4. C

Üçgen Eşitsizliği - X

Örnek



ABCDE bir beşgen

$|AE| = 6$ cm , $|AB| = 4$ cm , $|ED| = 5$ cm
 $|CD| = 3$ cm

Yukarıdaki verilene göre, Çevre(BCE) nin en büyük tamsayı değeri kaçtır?

- A) 25 B) 30 C) 35 D) 40 E) 45

Çözüm

AEB üçgeninde, $|6 - 4| < |EB| < 6 + 4$

$$\Rightarrow 2 < |EB| < 10$$

CDE üçgeninde, $|5 - 3| < |EC| < 5 + 3$

$$\Rightarrow 2 < |EC| < 8$$

$$2 < |EB| < 10$$

$$+ 2 < |EC| < 8$$

$$4 < |EB| + |EC| < 18 \text{ olur.}$$

EBC üçgeninde, $|BC| < |EB| + |EC| \Rightarrow |BC| < 18$

$$|EB| + |EC| < 18$$

$$+ |BC| < 18$$

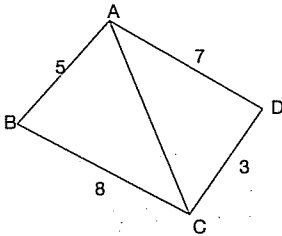
$$|EB| + |EC| + |BC| < 36 \Rightarrow \text{Ç(EBC)} < 36 \text{ olur.}$$

Buna göre, EBC üçgenin çevresinin en büyük tamsayı değeri 35 olur.

Cevap C

TEST - 12

1.



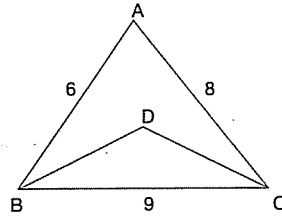
ABCD bir dörtgen

$|AB| = 5$ cm
 $|BC| = 8$ cm
 $|AD| = 7$ cm
 $|DC| = 3$ cm

Yukarıdaki verilene göre, Ç(ABC) nin en büyük tamsayı değeri kaçtır?

- A) 25 B) 24 C) 23 D) 22 E) 21

3.



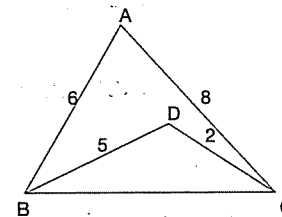
ABC bir üçgen

$|AB| = 6$ cm
 $|AC| = 8$ cm
 $|BC| = 9$ cm

Yukarıdaki verilene göre, Ç(BDC) nin en büyük tamsayı değeri kaçtır?

- A) 20 B) 21 C) 22 D) 23 E) 24

4.



ABC bir üçgen

$|AB| = 6$ cm ,
 $|AC| = 8$ cm
 $|BD| = 5$ cm
 $|DC| = 2$ cm

Yukarıdaki verilene göre, Ç(ABC) nin en küçük tamsayı değeri kaçtır?

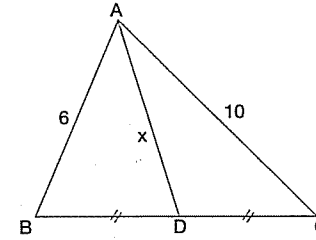
- A) 18 B) 20 C) 22 D) 24 E) 26

sonuç yayınları

1. D 2. E 3. C 4. A

Üçgen Eşitsizliği - XI

Örnek



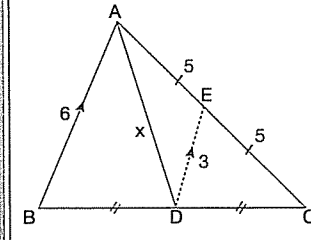
ABC bir üçgen

$|BD| = |DC|$
 $|AB| = 6$ cm
 $|AC| = 10$ cm

Yukarıdaki verilene göre, $|AD| = x$ kaç farklı tamsayı değeri alabilir?

- A) 2 B) 3 C) 5 D) 6 E) 7

Çözüm



$[ED] \parallel [AB]$ dersek
 $|AE| = |EC| = 5$ cm ve
 $|ED| = \frac{|AB|}{2} = \frac{6}{2} = 3$ cm olur.

AED üçgeninde, $|5 - 3| < x < 5 + 3$

$$2 < x < 8 \text{ olur.}$$

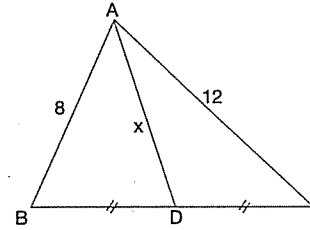
Bu aralıktaki tamsayılar, 3, 4, 5, 6, 7 dir.

Yani 5 tanedir.

Cevap C

TEST - 13

1.



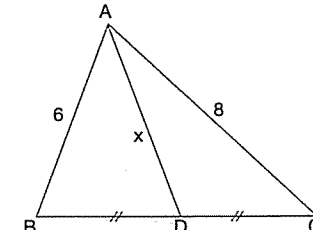
ABC bir üçgen

$|BD| = |DC|$
 $|AB| = 8$ cm
 $|AC| = 12$ cm

Yukarıdaki verilene göre, $|AD| = x$ in alabileceği en büyük ve en küçük tamsayı değerleri toplamı kaçtır?

- A) 10 B) 11 C) 12 D) 13 E) 14

3.



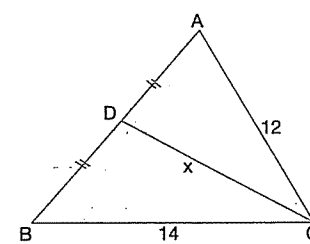
ABC bir üçgen

$|BD| = |DC|$
 $|AB| = 6$ cm
 $|AC| = 8$ cm

Yukarıdaki verilene göre, $|AD| = x$ in alabileceği tamsayı değerleri toplamı kaçtır?

- A) 16 B) 17 C) 18 D) 19 E) 20

2.



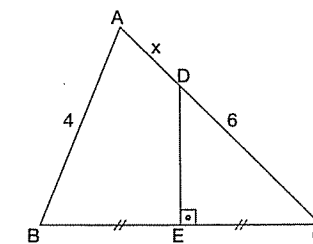
ABC bir üçgen

$|AD| = |DB|$
 $|BC| = 14$ cm
 $|AC| = 12$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç farklı tamsayı değeri alır?

- A) 11 B) 12 C) 13 D) 14 E) 15

4.



ABC bir üçgen

$[DE] \perp [BC]$
 $|BE| = |EC|$
 $|AB| = 4$ cm
 $|DC| = 6$ cm

Yukarıdaki verilene göre, $|AD| = x$ in alabileceği kaç farklı tamsayı değeri vardır?

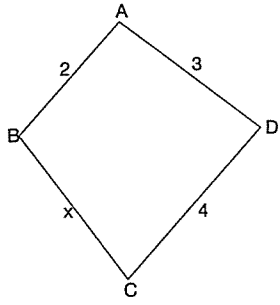
- A) 6 B) 7 C) 8 D) 9 E) 10

sonuç yayınları

1. C 2. A 3. E 4. B

Üçgen Eşitsizliği - XII

Örnek



ABCD bir dörtgen

$$|AB| = 2 \text{ cm}$$

$$|AD| = 3 \text{ cm}$$

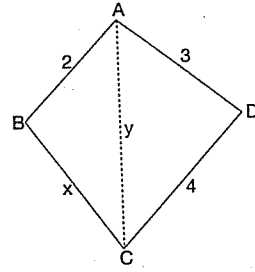
$$|DC| = 4 \text{ cm}$$

Yukarıdaki verilere göre, $|BC| = x$ in en küçük ve en büyük tamsayı değerleri toplamı kaçtır?

- A) 8 B) 9 C) 10 D) 11 E) 12



Çözüm



ACD üçgeninde,

$$4 - 3 < y < 4 + 3$$

$$1 < y < 7 \text{ olur.}$$

x in en küçük tamsayı değerini bulmak için

$$|AB| = |AC| = 2 \text{ seçmeliyiz.}$$

$$\text{Buna göre, } 2 - 2 < x < 2 + 2 \Rightarrow 0 < x < 4$$

x in en küçük değeri 1 olur.

Yukarıda $1 < y < 7$ bulmuştuk.

$$y = 6,9 \text{ alırsak } x < 2 + y \Rightarrow x < 2 + 6,9 \Rightarrow x < 8,9 \text{ olur.}$$

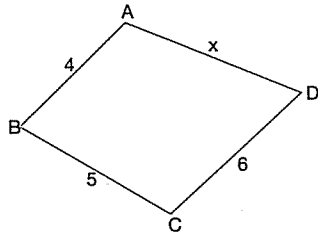
Burada x in en büyük tamsayı değeri 8 olur.

$$1 + 8 = 9 \text{ olur.}$$

Cevap B

TEST - 14

1.



ABCD bir dörtgen

$$|AB| = 4 \text{ cm}$$

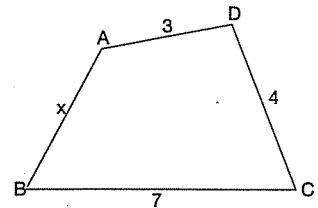
$$|BC| = 5 \text{ cm}$$

$$|CD| = 6 \text{ cm}$$

Yukarıdaki verilere göre, $|AD| = x$ in alabileceği en büyük tamsayı değeri kaçtır?

- A) 10 B) 11 C) 12 D) 13 E) 14

2.



ABCD bir dörtgen

$$|AD| = 3 \text{ cm}$$

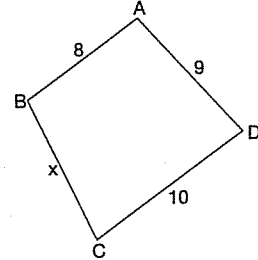
$$|DC| = 4 \text{ cm}$$

$$|BC| = 7 \text{ cm}$$

Yukarıdaki verilere göre, $|AB| = x$ in alabileceği en büyük tamsayı değeri kaçtır?

- A) 10 B) 11 C) 12 D) 13 E) 14

3.



ABCD bir dörtgen

$$|AB| = 8 \text{ cm}$$

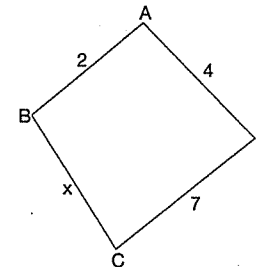
$$|AD| = 9 \text{ cm}$$

$$|DC| = 10 \text{ cm}$$

Yukarıdaki verilere göre, $|BC| = x$ in alabileceği en küçük tamsayı değeri kaçtır?

- A) 1 B) 2 C) 3 D) 4 E) 5

4.



ABCD bir dörtgen

$$|AB| = 2 \text{ cm}$$

$$|DC| = 7 \text{ cm}$$

$$|AD| = 4 \text{ cm}$$

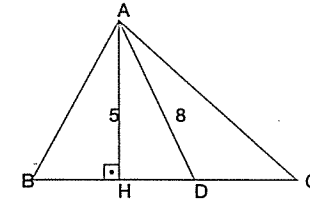
Yukarıdaki verilere göre, $|BC| = x$ in alabileceği en büyük ve en küçük tamsayı değerleri toplamı kaçtır?

- A) 13 B) 14 C) 15 D) 16 E) 17

1. E 2. D 3. A 4. B

Üçgen Eşitsizliği - XIII

Örnek



ABC bir üçgen

$$[AH] \perp [BC]$$

$$|BD| = |DC|$$

$$|AD| = 8 \text{ cm}$$

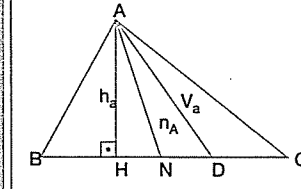
$$|AH| = 5 \text{ cm}$$

Yukarıdaki verilere göre, $m(\widehat{BAC})$ açısının açıortayının alabileceği tamsayı değerleri toplamı kaçtır?

- A) 11 B) 12 C) 13 D) 14 E) 15



Çözüm



Bir üçgende aynı köşeden çizilen kenarortay, açıortay ve yükseklik arasındaki sıralama,

$$|AH| = h_a \text{ (yükseklik)}$$

$$|AN| = n_a \text{ (açıortay)}$$

$$|AD| = V_a \text{ (kenarortay)}$$

$$h_a < n_a < V_a$$

$$h_b < n_b < V_b$$

$$h_c < n_c < V_c$$

ABC üçgeninde

$$|AH| = 5 \text{ cm (yükseklik)}$$

$$|AD| = 8 \text{ cm (kenarortay)}$$

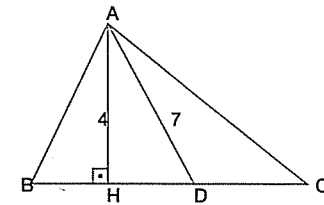
$$5 < n_a < 8$$

$$\Rightarrow 6 + 7 = 13 \text{ olur.}$$

Cevap C

TEST - 15

1.



ABC bir üçgen

$$[AH] \perp [BC]$$

$$|BD| = |DC|$$

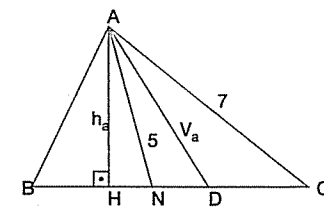
$$|AD| = 7 \text{ cm}$$

$$|AH| = 4 \text{ cm}$$

Yukarıdaki verilere göre, n_a nın alabileceği değerler toplamı kaçtır?

- A) 9 B) 10 C) 11 D) 12 E) 13

2.



ABC bir üçgen

$$[AN] \text{ açıortay}$$

$$|AH| = h_a$$

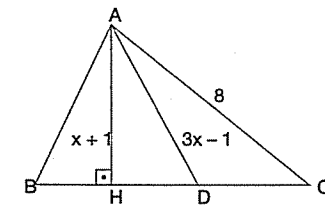
$$|AC| = 7 \text{ cm}$$

$$|AN| = 5 \text{ cm}$$

Yukarıdaki verilere göre, $h_a + V_a$ nın en büyük tamsayı değeri kaçtır?

- A) 9 B) 10 C) 11 D) 12 E) 13

3.



ABC bir üçgen

$$[AH] \perp [BC]$$

$$[AD] \text{ açıortay}$$

$$|AC| = 8 \text{ cm}$$

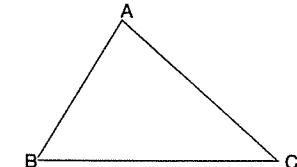
$$|AD| = 3x - 1$$

$$|AH| = x + 1$$

Yukarıdaki verilere göre, x in en büyük tamsayı değeri kaçtır?

- A) 2 B) 4 C) 6 D) 8 E) 10

4.



$$m(\widehat{A}) > m(\widehat{B}) > m(\widehat{C})$$

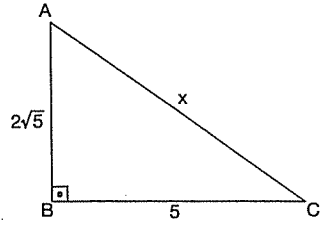
Yukarıdaki verilere göre, aşağıdakilerden hangisi yanlıştır?

- A) $h_a < h_b < h_c$ B) $V_a < V_b < V_c$ C) $n_a < n_b < n_c$
D) $h_a < n_b < n_c$ E) $n_b < V_c < h_a$

1. C 2. C 3. A 4. E

Dik Üçgen - I

Örnek



ABC bir dik üçgen

$[AB] \perp [BC]$

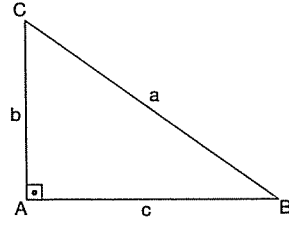
$|AB| = 2\sqrt{5}$ cm, $|BC| = 5$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) $8\sqrt{5}$ B) 8 C) $7\sqrt{2}$ D) 6 E) $3\sqrt{5}$



Çözüm



$$m(\widehat{A}) = 90^\circ \Rightarrow a^2 = b^2 + c^2 \text{ (Pisagor)}$$

Buna göre, $x^2 = (2\sqrt{5})^2 + 5^2$

$$x^2 = 20 + 25$$

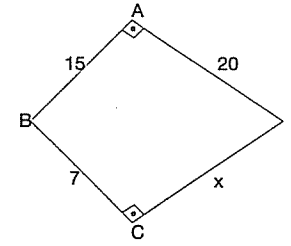
$$x^2 = 45$$

$$x = 3\sqrt{5} \text{ olur.}$$

Cevap E

Dik Üçgen - II

Örnek



ABCD bir dörtgen

$[DA] \perp [AB]$

$[DC] \perp [BC]$

$|AD| = 20$ cm

$|AB| = 15$ cm

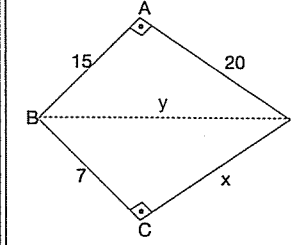
$|BC| = 7$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) 16 B) 18 C) 20 D) 24 E) 25



Çözüm



ABD üçgeninde

$$y^2 = 15^2 + 20^2 \text{ (15-20-25)}$$

$$y^2 = 225 + 400$$

$$y^2 = 625$$

$$y = 25$$

BCD üçgeninde, $25^2 = 7^2 + x^2 \text{ (7-24-25)}$

$$625 = 49 + x^2$$

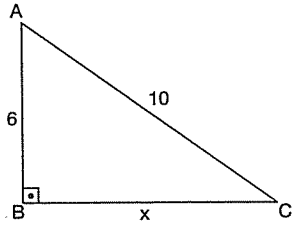
$$x^2 = 576$$

$$x = 24 \text{ olur.}$$

Cevap D

TEST - 1

1.



ABC bir dik üçgen

$[AB] \perp [BC]$

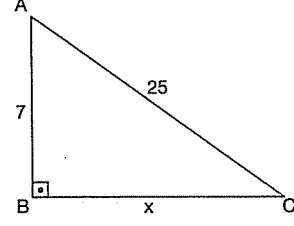
$|AC| = 10$ cm

$|AB| = 6$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

3.



ABC bir dik üçgen

$[AB] \perp [BC]$

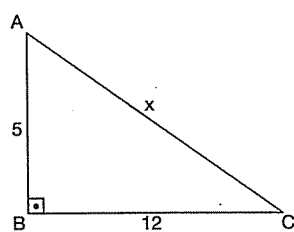
$|AC| = 25$ cm

$|AB| = 7$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 15 B) 18 C) 21 D) 24 E) 27

2.



ABC bir dik üçgen

$[AB] \perp [BC]$

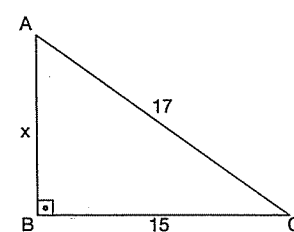
$|AB| = 5$ cm

$|BC| = 12$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 13 B) 14 C) 15 D) 16 E) 17

4.



ABC bir dik üçgen

$[AB] \perp [BC]$

$|AC| = 17$ cm

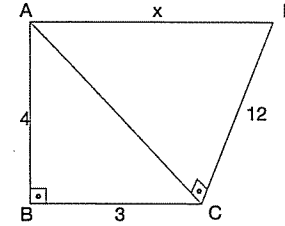
$|BC| = 15$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 16 B) 14 C) 12 D) 10 E) 8

TEST - 2

1.



ABCD bir dörtgen

$[AB] \perp [BC]$

$[AC] \perp [CD]$

$|CD| = 12$ cm

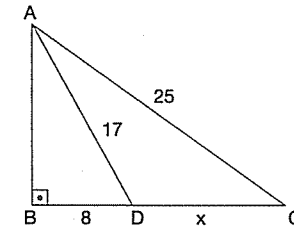
$|BC| = 3$ cm

$|AB| = 4$ cm

Yukarıdaki verilene göre, $|AD| = x$ kaç cm dir?

- A) 17 B) 16 C) 15 D) 14 E) 13

3.



ABC bir dik üçgen

$[AB] \perp [BC]$

$|AC| = 25$ cm

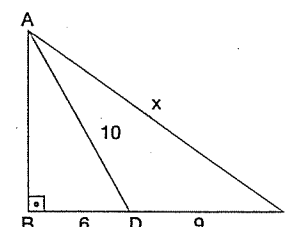
$|AD| = 17$ cm

$|BD| = 8$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16

2.



ABC bir dik üçgen

$[AB] \perp [BC]$

$|AD| = 10$ cm

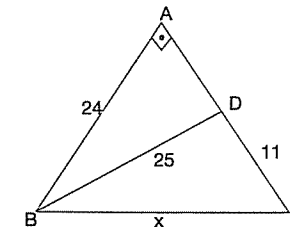
$|BD| = 6$ cm

$|DC| = 9$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 13 B) 15 C) 17 D) 19 E) 21

4.



ABC bir dik üçgen

$[BA] \perp [AC]$

$|AB| = 24$ cm

$|BD| = 25$ cm

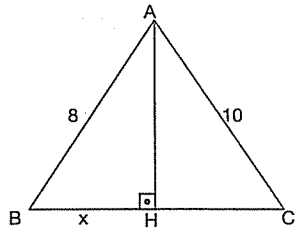
$|DC| = 11$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 26 B) 27 C) 28 D) 29 E) 30

Dik Üçgen - III

Örnek

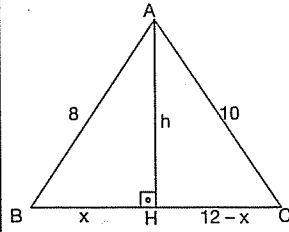


ABC bir üçgen
[AH] ⊥ [BC]
|AC| = 10 cm
|AB| = 8 cm
|BC| = 12 cm

Yukarıdaki verilene göre, |BH| = x kaç cm dir?

- A) $\frac{5}{2}$ B) $\frac{7}{2}$ C) $\frac{9}{2}$ D) $\frac{11}{2}$ E) $\frac{13}{2}$

Çözüm



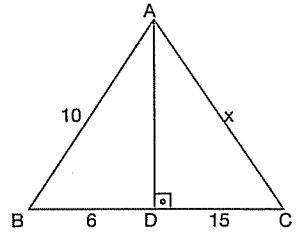
$$\begin{aligned} (12-x)^2 + h^2 &= 100 \\ -/x^2 + h^2 &= 64 \\ \hline (12-x)^2 - x^2 &= 36 \end{aligned}$$

$$\begin{aligned} \Rightarrow (12-x-x) \cdot (12-x+x) &= 36 \\ \Rightarrow (12-2x) \cdot 12 &= 36 \\ \Rightarrow 12-2x &= 3 \\ \Rightarrow 2x &= 9 \\ \Rightarrow x &= \frac{9}{2} \text{ olur.} \end{aligned}$$

Cevap C

TEST - 3

1.

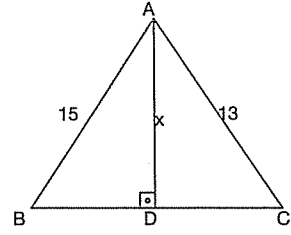


ABC bir üçgen
[AD] ⊥ [BC]
|AB| = 10 cm
|BD| = 6 cm
|DC| = 15 cm

Yukarıdaki verilene göre, |AC| = x kaç cm dir?

- A) 16 B) 17 C) 18 D) 19 E) 20

3.

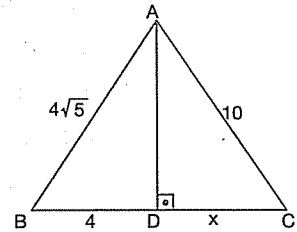


ABC bir üçgen
[AD] ⊥ [BC]
|AB| = 15 cm
|AC| = 13 cm
|BC| = 14 cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

- A) 8 B) 9 C) 10 D) 11 E) 12

2.

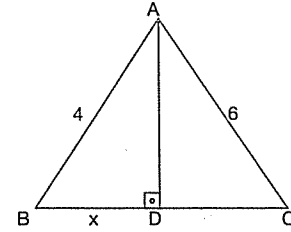


ABC bir üçgen
[AD] ⊥ [BC]
|AC| = 10 cm
|AB| = 4√5 cm
|BD| = 4 cm

Yukarıdaki verilene göre, |DC| = x kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

4.



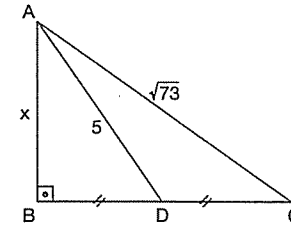
ABC bir üçgen
[AD] ⊥ [BC]
|AC| = 6 cm
|AB| = 4 cm
|BC| = 8 cm

Yukarıdaki verilene göre, |BD| = x kaç cm dir?

- A) $\frac{9}{4}$ B) $\frac{11}{4}$ C) $\frac{12}{5}$ D) $\frac{13}{4}$ E) $\frac{17}{5}$

Dik Üçgen - IV

Örnek

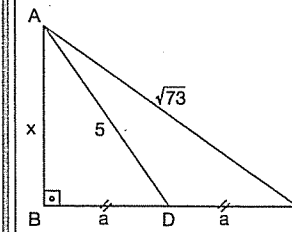


ABC bir dik üçgen
[AB] ⊥ [BC]
|BD| = |DC|
|AC| = √73 cm
|AD| = 5 cm

Yukarıdaki verilene göre, |AB| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



ABC üçgeninde,
 $4a^2 + x^2 = 73$
ABD üçgeninde,
 $a^2 + x^2 = 25$

$$\begin{aligned} 4a^2 + x^2 &= 73 \\ -/a^2 + x^2 &= 25 \\ \hline 3a^2 &= 48 \end{aligned}$$

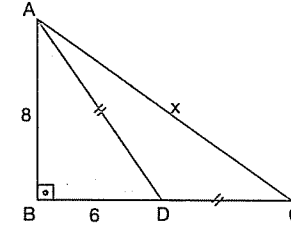
$$\Rightarrow a^2 = 16 \Rightarrow a = 4$$

ABD üçgeninde 3-4-5 üçgeninden x = 3 olur.

Cevap C

TEST - 4

1.

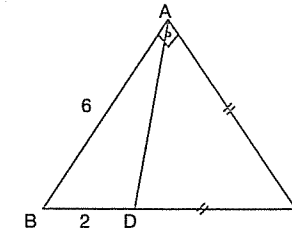


ABC bir dik üçgen
[AB] ⊥ [BC]
|AD| = |DC|
|AB| = 8 cm
|BD| = 6 cm

Yukarıdaki verilene göre, |AC| = x kaç cm dir?

- A) $9\sqrt{5}$ B) $8\sqrt{5}$ C) $6\sqrt{5}$
D) $5\sqrt{5}$ E) $4\sqrt{5}$

3.

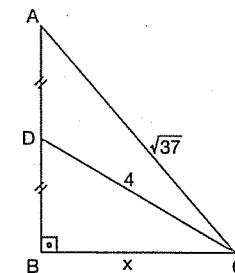


ABC bir dik üçgen
[AB] ⊥ [AC]
|AC| = |DC|
|AB| = 6 cm
|BD| = 2 cm

Yukarıdaki verilene göre, |AC| kaç cm dir?

- A) 6 B) $6\sqrt{2}$ C) 8 D) $8\sqrt{2}$ E) 10

2.

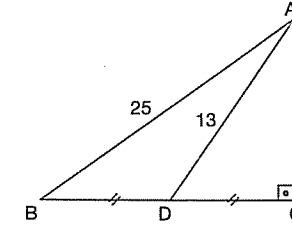


ABC bir dik üçgen
[AB] ⊥ [BC]
|AD| = |DB|
|AC| = √37 cm
|DC| = 4 cm

Yukarıdaki verilene göre, |BC| = x kaç cm dir?

- A) $\sqrt{7}$ B) $2\sqrt{2}$ C) 3 D) $2\sqrt{3}$ E) $\sqrt{13}$

4.



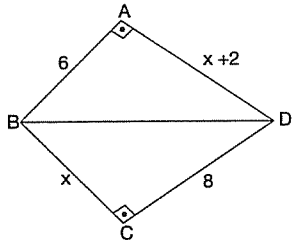
ABC bir dik üçgen
[AC] ⊥ [BC]
|BD| = |DC|
|AB| = 25 cm
|AD| = 13 cm

Yukarıdaki verilene göre, |AC| = x kaç cm dir?

- A) $\sqrt{11}$ B) 3 C) $\sqrt{13}$ D) 4 E) $\sqrt{17}$

Dik Üçgen - V

Örnek



ABCD bir dörtgen

$$[AB] \perp [AD]$$

$$[BC] \perp [DC]$$

$$|AB| = 6 \text{ cm}$$

$$|DC| = 8 \text{ cm}$$

$$|AD| = x + 2$$

$$|BC| = x$$

Yukarıdaki verilere göre, $|BD|$ kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10



Çözüm

$$\text{ABD üçgeninde, } |BD|^2 = 6^2 + (x+2)^2 \dots\dots I$$

$$\text{BCD üçgeninde, } |BD|^2 = x^2 + 8^2 \dots\dots II$$

I ve II den

$$6^2 + (x+2)^2 = x^2 + 8^2$$

$$\Rightarrow 36 + x^2 + 4x + 4 = x^2 + 64$$

$$\Rightarrow 4x = 24$$

$$\Rightarrow x = 6 \text{ olur.}$$

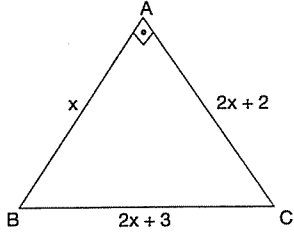
$$|BD|^2 = 6^2 + 8^2 \text{ (6-8-10)}$$

$$\Rightarrow |BD| = 10 \text{ olur.}$$

Cevap E

TEST - 5

1.



ABC bir dik üçgen

$$[AB] \perp [AC]$$

$$|AC| = 2x + 2$$

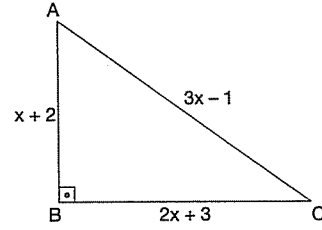
$$|BC| = 2x + 3$$

$$|AB| = x$$

Yukarıdaki verilere göre, x kaç cm dir?

- A) 5 B) $5\sqrt{2}$ C) 8 D) $8\sqrt{3}$ E) 10

3.



ABC dik üçgen

$$[AB] \perp [BC]$$

$$|AB| = x + 2$$

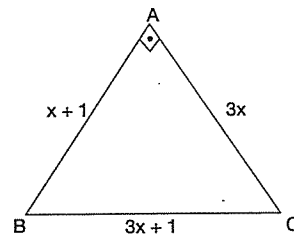
$$|BC| = 2x + 3$$

$$|AC| = 3x - 1$$

Yukarıdaki verilere göre, $|BC|$ kaç cm dir?

- A) 21 B) 20 C) 17 D) 15 E) 13

2.



ABC bir dik üçgen

$$[AB] \perp [AC]$$

$$|BC| = 3x + 1$$

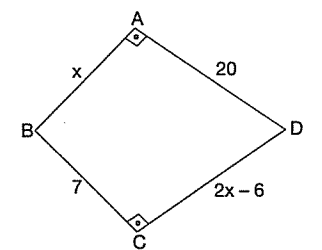
$$|AB| = x + 1$$

$$|AC| = 3x$$

Yukarıdaki verilere göre, $\angle(ABC)$ kaç cm dir?

- A) 28 B) 30 C) 32 D) 34 E) 36

4.



ABCD bir dörtgen

$$[AB] \perp [AD]$$

$$[BC] \perp [DC]$$

$$|AD| = 20 \text{ cm}$$

$$|BC| = 7 \text{ cm}$$

$$|CD| = 2x - 6$$

$$|AB| = x$$

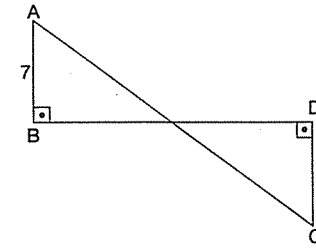
Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 15

1. A 2. B 3. D 4. E

Dik Üçgen - VI

Örnek



$$[AB] \perp [BD]$$

$$[DC] \perp [BD]$$

$$|AB| = 7 \text{ br}$$

$$|DC| = 9 \text{ br}$$

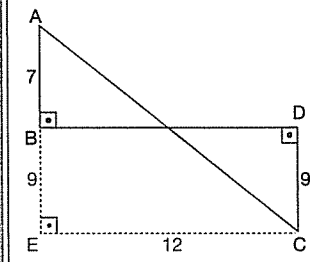
$$|BD| = 12 \text{ br}$$

Yukarıdaki verilere göre, $|AC|$ kaç br dir?

- A) 21 B) 20 C) 18 D) 17 E) 16



Çözüm



AB uzatılıp ve C noktasından $[BD]$ paralel çizersek

$$|EB| = |DC| = 9 \text{ br}$$

$$|EC| = |BD| = 12 \text{ br}$$

AEC dik üçgeninde,

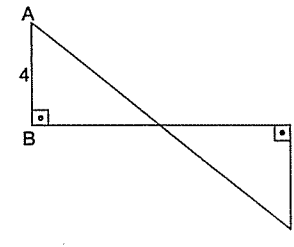
$$|AC|^2 = 16^2 + 12^2 \text{ (12-16-20)}$$

$$|AC| = 20 \text{ br olur.}$$

Cevap B

TEST - 6

1.



$$[AB] \perp [BD]$$

$$[CD] \perp [BD]$$

$$|AB| = 4 \text{ cm}$$

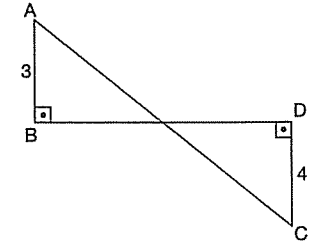
$$|DC| = 2 \text{ cm}$$

$$|BD| = 8 \text{ cm}$$

Yukarıdaki verilere göre, $|AC|$ kaç cm dir?

- A) 18 B) 16 C) 14 D) 12 E) 10

3.



$$[AB] \perp [BD]$$

$$[CD] \perp [BD]$$

$$|AB| = 3 \text{ cm}$$

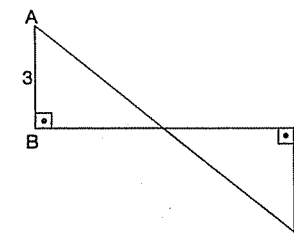
$$|DC| = 4 \text{ cm}$$

$$|BD| = 24 \text{ cm}$$

Yukarıdaki verilere göre, $|AC|$ kaç cm dir?

- A) 17 B) 19 C) 21 D) 23 E) 25

2.



$$[AB] \perp [BD]$$

$$[CD] \perp [BD]$$

$$|AB| = 3 \text{ cm}$$

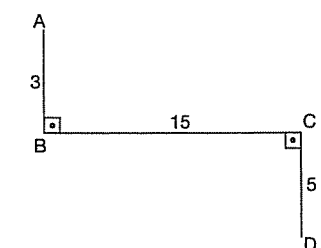
$$|DC| = 2 \text{ cm}$$

$$|AC| = 13 \text{ cm}$$

Yukarıdaki verilere göre, $|BD|$ kaç cm dir?

- A) 10 B) 12 C) 16 D) 18 E) 20

4.



$$[AB] \perp [BC]$$

$$[DC] \perp [BC]$$

$$|AB| = 3 \text{ cm}$$

$$|DC| = 5 \text{ cm}$$

$$|BC| = 15 \text{ cm}$$

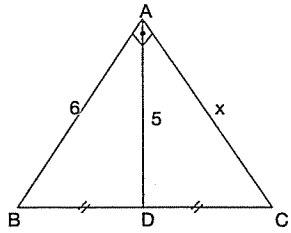
Yukarıdaki verilere göre, A noktası ile D noktası arasındaki en kısa mesafe kaç cm dir?

- A) 10 B) 13 C) 15 D) 17 E) 19

1. E 2. B 3. E 4. D

Dik Üçgen - VII

Örnek

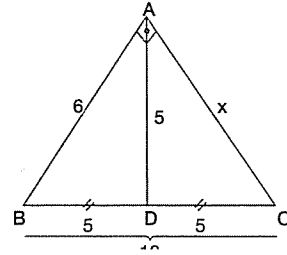


ABC bir dik üçgen
 $[AB] \perp [AC]$
 $|BD| = |DC|$
 $|AB| = 6$ cm
 $|AD| = 5$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

Çözüm



$\left. \begin{array}{l} [AB] \perp [AC] \\ [BD] = [DC] \end{array} \right\} \Rightarrow |AD| = |BD| = |DC| = 5$ olur.
 (Muhteşem üçlü)

$|BC| = 2|AD| = 2 \cdot 5 = 10$ cm

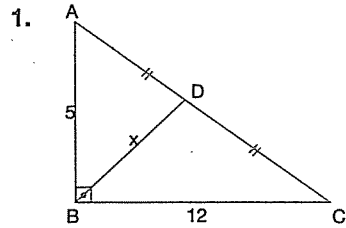
ABC üçgeninde

$$10^2 = 6^2 + x^2 \quad (6-8-10)$$

$x = 8$ cm olur.

Cevap E

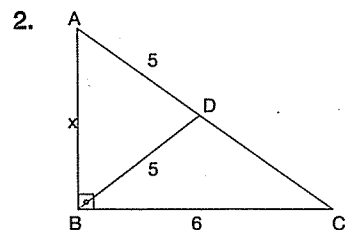
TEST - 7



ABC bir dik üçgen
 $[AB] \perp [BC]$
 $|AD| = |DC|$
 $|AB| = 5$ cm
 $|BC| = 12$ cm

Yukarıdaki verilere göre, $|BD| = x$ kaç cm dir?

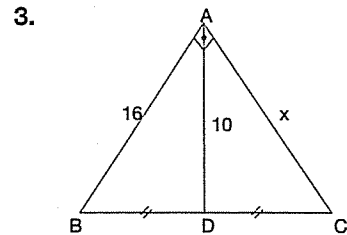
- A) 6 B) $\frac{13}{2}$ C) 8 D) $\frac{17}{2}$ E) 10



ABC bir dik üçgen
 $[AB] \perp [BC]$
 $|AD| = |DC| = 5$ cm
 $|BC| = 6$ cm

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

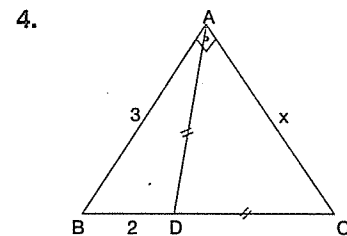
- A) 5 B) 7 C) 7 D) 8 E) 9



ABC bir dik üçgen
 $[AB] \perp [AC]$
 $|BD| = |DC|$
 $|AB| = 16$ cm
 $|AD| = 10$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) 12 B) 13 C) 15 D) 17 E) 20



ABC bir dik üçgen
 $[AB] \perp [AC]$
 $|AD| = |DC|$
 $|AB| = 3$ cm
 $|BD| = 2$ cm

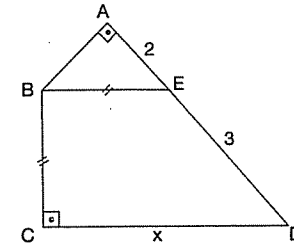
Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) $\sqrt{7}$ B) 3 C) $\sqrt{13}$ D) 4 E) 5

1. B 2. D 3. A 4. A

Dik Üçgen - VIII

Örnek

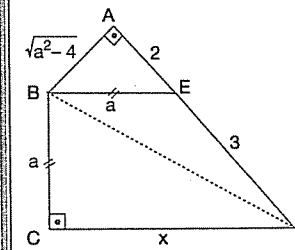


ABCD bir dörtgen
 $[AB] \perp [AD]$
 $[BC] \perp [DC]$
 $|BE| = |EC|$
 $|AE| = 2$ cm
 $|ED| = 3$ cm

Yukarıdaki verilere göre, $|CD| = x$ kaç cm dir?

- A) 3 B) $2\sqrt{3}$ C) 4 D) $\sqrt{21}$ E) 5

Çözüm



$|EB| = |BC| = a$ diyelim.
 ABE üçgeninde
 $|AB|^2 + 2^2 = a^2$
 $\Rightarrow |AB| = \sqrt{a^2 - 4}$ olur.
 B ile D yi birleştirelim.

ABD üçgeninde
 $(\sqrt{a^2 - 4})^2 + 5^2 = |BD|^2$

BCD üçgeninde
 $a^2 + x^2 = |BD|^2$

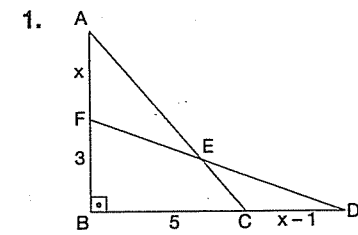
$$(\sqrt{a^2 - 4})^2 + 5^2 = a^2 + x^2$$

$$a^2 - 4 + 25 = a^2 + x^2$$

$$x^2 = 21 \Rightarrow x = \sqrt{21} \text{ olur.}$$

Cevap D

TEST - 8



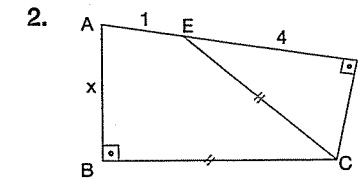
Şekilde,
 $[AB] \perp [BD]$
 A, E, C ve F, E, D
 noktaları doğrusal

$|AC| = |FD|$, $|FB| = 3$ cm, $|BC| = 5$ cm

$|AF| = x$, $|CD| = x - 1$

Yukarıdaki verilere göre, $|AF| = x$ kaç cm dir?

- A) 3 B) $\frac{7}{2}$ C) 4 D) $\frac{9}{2}$ E) 5

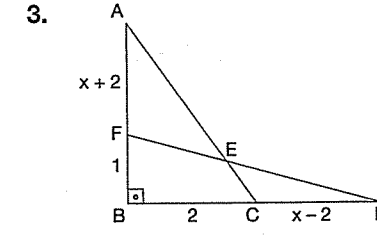


ABCD bir dörtgen
 $[AB] \perp [BC]$
 $[AD] \perp [DC]$

$|BC| = |EC|$, $|AE| = 1$ cm, $|ED| = 4$ cm

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 2 B) $\frac{5}{2}$ C) 3 D) $\frac{7}{2}$ E) 4

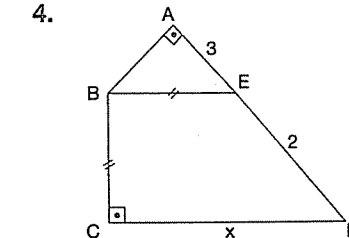


Şekilde,
 $[AB] \perp [BD]$
 A, E, C ve F, E, D
 noktaları doğrusal
 $|AC| = 2|FD|$
 $|FB| = 1$ cm

$|BC| = 2$ cm, $|AF| = x + 2$, $|CD| = x - 2$

Yukarıdaki verilere göre, x kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7



ABCD bir dörtgen
 $[AB] \perp [AD]$
 $[BC] \perp [DC]$
 $|BE| = |EC|$
 $|AE| = 3$ cm
 $|ED| = 2$ cm

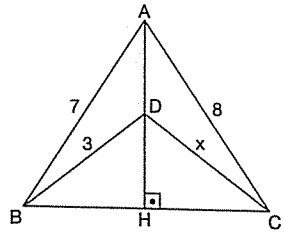
Yukarıdaki verilere göre, $|CD| = x$ kaç cm dir?

- A) 8 B) 7 C) 6 D) 5 E) 4

1. D 2. C 3. A 4. E

Dik Üçgen - IX

Örnek



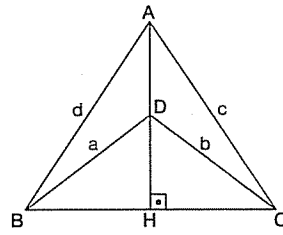
ABC bir üçgen
[AH] $\perp$ [BC]
|AC| = 8 cm
|AB| = 7 cm
|BD| = 3 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) $2\sqrt{3}$ B) 4 C) $3\sqrt{2}$ D) $2\sqrt{6}$ E) 5



Çözüm



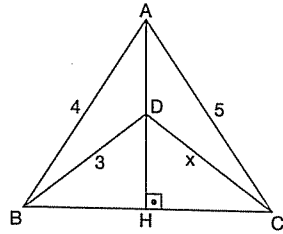
$$a^2 + c^2 = b^2 + d^2$$

$$\begin{aligned} \text{Buna göre, } 3^2 + 8^2 &= x^2 + 7^2 \Rightarrow 9 + 64 = x^2 + 49 \\ &\Rightarrow x^2 = 24 \\ &\Rightarrow x = 2\sqrt{6} \text{ olur.} \end{aligned}$$

Cevap D

TEST - 9

1.

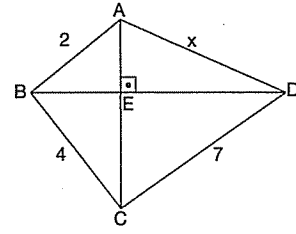


ABC bir üçgen
[AH] $\perp$ [BC]
|AB| = 4 cm
|AC| = 5 cm
|BD| = 3 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) $3\sqrt{2}$ B) 4 C) $5\sqrt{3}$ D) 6 E) $5\sqrt{5}$

3.

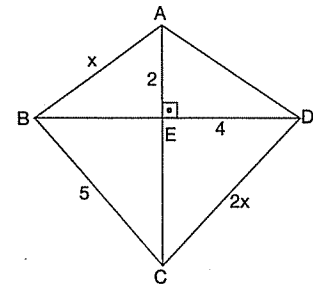


ABCD bir dörtgen
[AC] $\perp$ [BD]
|AB| = 2 cm
|BC| = 4 cm
|CD| = 7 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $2\sqrt{5}$ B) $\sqrt{37}$ C) $2\sqrt{7}$ D) $\sqrt{13}$ E) $5\sqrt{3}$

4.



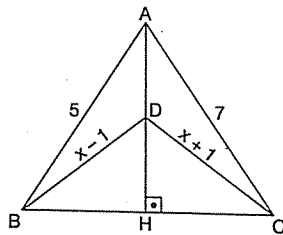
ABCD bir dörtgen
[AC] $\perp$ [BD]
|AE| = 2 cm
|ED| = 4 cm
|BC| = 5 cm
|CD| = 2x
|AB| = x

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

sonuç yayınları

2.



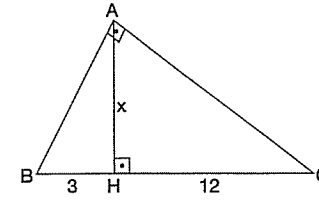
ABC bir üçgen
[AH] $\perp$ [BC]
|AB| = 5 cm
|AC| = 7 cm
|BD| = x - 1
|DC| = x + 1

Yukarıdaki verilere göre, x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

Öklid Bağlantıları - I

Örnek



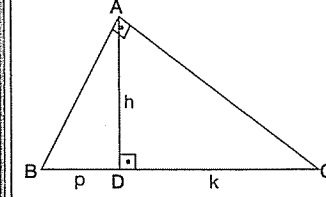
ABC bir dik üçgen
[AH] $\perp$ [BC]
|BH| = 3 cm
|HC| = 12 cm

Yukarıdaki verilere göre, |AH| = x kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9



Çözüm



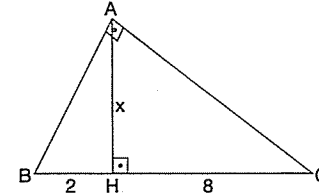
$$h^2 = p \cdot k$$

$$\begin{aligned} x^2 &= 3 \cdot 12 \\ x^2 &= 36 \\ x &= 6 \text{ olur.} \end{aligned}$$

Cevap B

TEST - 1

1.

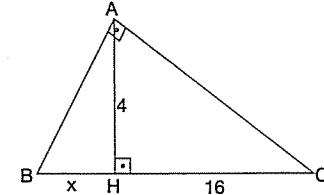


ABC bir dik üçgen
[AH] $\perp$ [BC]
|HC| = 8 cm
|BH| = 2 cm

Yukarıdaki verilere göre, |AH| = x kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

3.

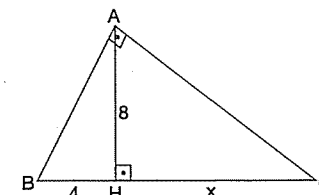


ABC bir dik üçgen
[AH] $\perp$ [BC]
|AH| = 4 cm
|HC| = 16 cm

Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) 1 B) 2 C) 4 D) 6 E) 8

2.

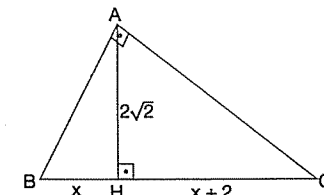


ABC bir dik üçgen
[AH] $\perp$ [BC]
|AH| = 8 cm
|BH| = 4 cm

Yukarıdaki verilere göre, |HC| = x kaç cm dir?

- A) 8 B) 12 C) 16 D) 18 E) 20

4.



ABC bir dik üçgen
[AH] $\perp$ [BC]
|AH| = $2\sqrt{2}$ cm
|HC| = x + 2 cm

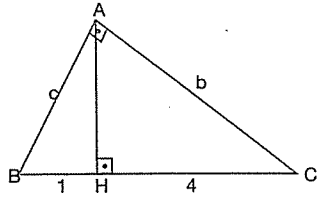
Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) 10 B) 8 C) 6 D) 4 E) 2

sonuç yayınları

Öklid Bağlıları - II

Örnek



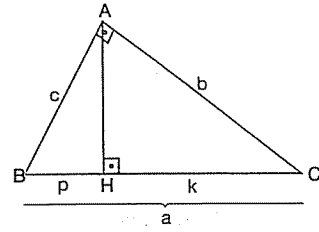
ABC dik üçgen
[AH] ⊥ [BC]
|BH| = 1 cm
|HC| = 4 cm
|AC| = b
|AB| = c

Yukarıdaki verilere göre, b + c kaç cm dir?

- A) 2 B) $\sqrt{5}$ C) $2\sqrt{5}$
D) $3\sqrt{5}$ E) $4\sqrt{5}$

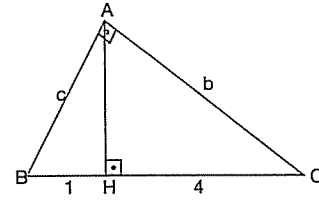


Çözüm



$$b^2 = k \cdot a$$

$$c^2 = p \cdot a$$



$$b^2 = 4 \cdot 5$$

$$b = 2\sqrt{5} \text{ cm olur.}$$

$$c^2 = 1 \cdot 5$$

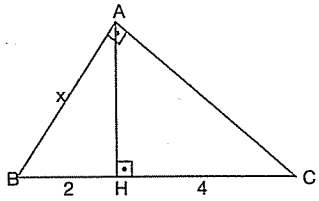
$$c = \sqrt{5} \text{ cm olur.}$$

O halde, $b + c = 2\sqrt{5} + \sqrt{5} = 3\sqrt{5}$ olur.

Cevap D

TEST - 2

1.

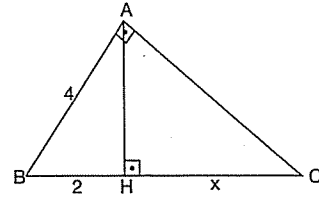


ABC dik üçgen
[AH] ⊥ [BC]
|BH| = 2 cm
|HC| = 4 cm

Yukarıdaki verilere göre, |BA| = x kaç cm dir?

- A) $2\sqrt{2}$ B) $2\sqrt{3}$ C) $3\sqrt{2}$
D) $4\sqrt{3}$ E) $5\sqrt{2}$

3.

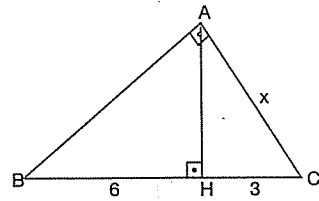


ABC dik üçgen
[AH] ⊥ [BC]
|AB| = 4 cm
|BH| = 2 cm

Yukarıdaki verilere göre, |HC| = x kaç cm dir?

- A) 1 B) 2 C) 4 D) 6 E) 8

2.

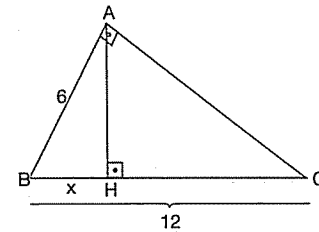


ABC dik üçgen
[AH] ⊥ [BC]
|HC| = 3 cm
|BH| = 6 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $2\sqrt{3}$ B) $3\sqrt{3}$ C) $4\sqrt{3}$
D) $5\sqrt{3}$ E) $6\sqrt{3}$

4.



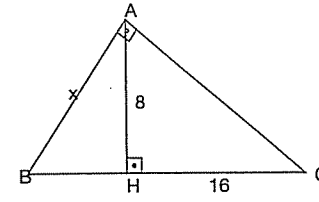
ABC dik üçgen
[AH] ⊥ [BC]
|AB| = 6 cm
|BC| = 12 cm

Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

Öklid Bağlıları - III

Örnek



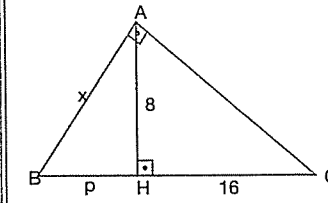
ABC dik üçgen
[AH] ⊥ [BC]
|AH| = 8 cm
|HC| = 16 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) $2\sqrt{5}$ B) $3\sqrt{3}$ C) $3\sqrt{5}$
D) $4\sqrt{3}$ E) $4\sqrt{5}$



Çözüm



$$h^2 = p \cdot k$$

$$8^2 = p \cdot 16$$

$$64 = p \cdot 16$$

$$p = 4 \text{ olur.}$$

$$x^2 = p \cdot (p + 16) \Rightarrow x^2 = 4 \cdot (4 + 16)$$

$$\Rightarrow x^2 = 4 \cdot 20$$

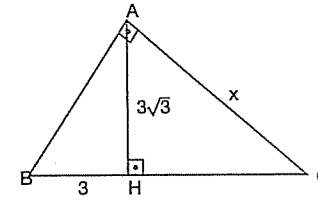
$$\Rightarrow x^2 = 80$$

$$\Rightarrow x = 4\sqrt{5} \text{ cm olur.}$$

Cevap E

TEST - 3

1.

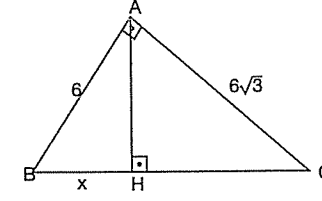


ABC dik üçgen
[AH] ⊥ [BC]
|BH| = 3 cm
|AH| = $3\sqrt{3}$ cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $4\sqrt{2}$ B) 6 C) $6\sqrt{3}$ D) 10 E) $8\sqrt{3}$

3.

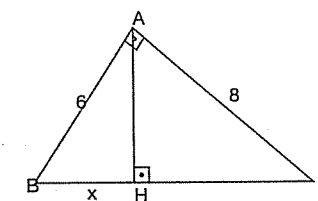


ABC dik üçgen
[AH] ⊥ [BC]
|AB| = 6 cm
|AC| = $6\sqrt{3}$ cm

Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) 3 B) $3\sqrt{3}$ C) 4
D) $4\sqrt{2}$ E) 6

2.

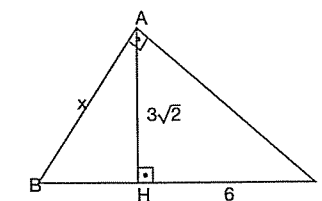


ABC dik üçgen
[AH] ⊥ [BC]
|AC| = 8 cm
|AB| = 6 cm

Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) $\frac{9}{5}$ B) 2 C) $\frac{12}{5}$ D) 3 E) $\frac{18}{5}$

4.



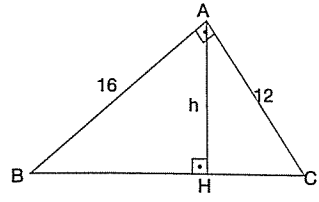
ABC dik üçgen
[AH] ⊥ [BC]
|AH| = $3\sqrt{2}$ cm
|HC| = 6 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) $2\sqrt{2}$ B) $3\sqrt{3}$ C) $4\sqrt{2}$
D) $4\sqrt{3}$ E) $5\sqrt{2}$

Öklid Bağlantıları - IV

Örnek

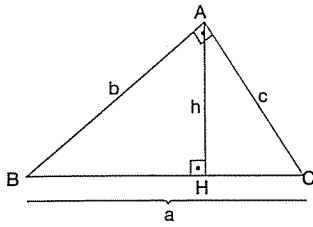


ABC dik üçgen
[AH] ⊥ [BC]
|AB| = 16 cm
|AC| = 12 cm

Yukarıdaki verilere göre, |AH| = h kaç cm dir?

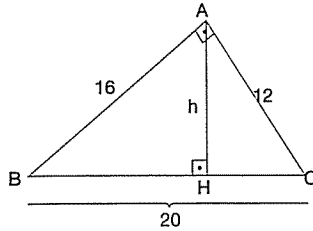
- A) 9,6 B) 8,4 C) 7,2 D) 6,4 E) 5,4

Çözüm



$$a \cdot h = b \cdot c$$

$$\frac{1}{h^2} = \frac{1}{b^2} + \frac{1}{c^2}$$



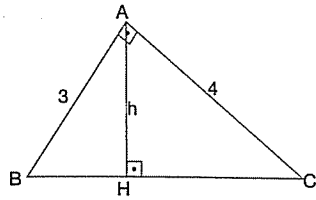
ABC dik üçgeninde,
|BC|² = 12² + 16²
|BC|² = 144 + 256
|BC|² = 400
|BC| = 20 cm

$$a \cdot h = b \cdot c \Rightarrow 20 \cdot h = 12 \cdot 16 \Rightarrow h = 9,6 \text{ olur.}$$

Cevap A

TEST - 4

1.

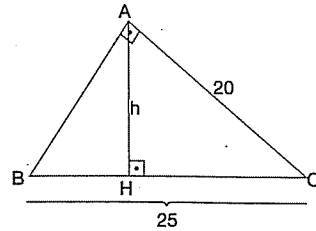


ABC dik üçgen
[AH] ⊥ [BC]
|AB| = 3 cm
|AC| = 4 cm

Yukarıdaki verilere göre, |AH| = h kaç cm dir?

- A) 1 B) $\frac{9}{5}$ C) 2 D) $\frac{12}{5}$ E) 3

2.

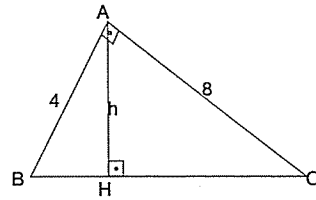


ABC dik üçgen
[AH] ⊥ [BC]
|AC| = 20 cm
|BC| = 25 cm

Yukarıdaki verilere göre, |AH| = h kaç cm dir?

- A) 9 B) 12 C) 14 D) 16 E) 18

3.

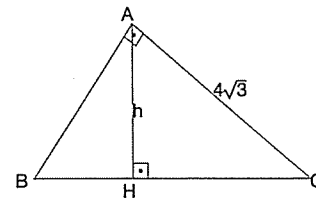


ABC dik üçgen
[AH] ⊥ [BC]
|AC| = 8 cm
|AB| = 4 cm

Yukarıdaki verilere göre, |AH| = h kaç cm dir?

- A) $\frac{3\sqrt{5}}{5}$ B) $\frac{4\sqrt{5}}{5}$ C) $\frac{6\sqrt{5}}{5}$
D) $\frac{7\sqrt{5}}{5}$ E) $\frac{8\sqrt{5}}{5}$

4.



ABC dik üçgen
[AH] ⊥ [BC]
|AC| = 4√3 cm
|BC| = 2√15 cm

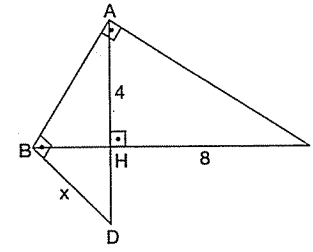
Yukarıdaki verilere göre, |AH| = h kaç cm dir?

- A) 3√2 B) $\frac{3\sqrt{3}}{2}$ C) $\frac{4\sqrt{5}}{3}$
D) $\frac{4\sqrt{15}}{5}$ E) $\frac{2\sqrt{3}}{3}$

1. D 2. B 3. E 4. D

Öklid Bağlantıları - V

Örnek

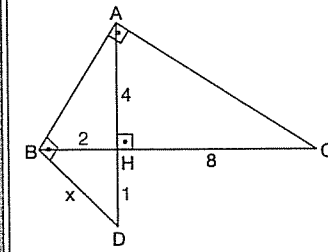


[AB] ⊥ [AC]
[AB] ⊥ [BD]
[AD] ⊥ [BC]
|AH| = 4 cm
|HC| = 8 cm

Yukarıdaki verilere göre, |BD| = x kaç cm dir?

- A) √5 B) 2√5 C) 3√5
D) 4√5 E) 5√5

Çözüm



ABC üçgeninde,
|AH|² = |BH| · |HC|
4² = |BH| · 8
|BH| = 2 cm

ABD üçgeninde,

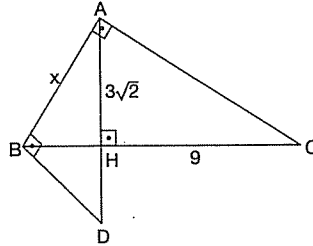
$$|BH|^2 = |AH| \cdot |HD| \Rightarrow 2^2 = 4 \cdot |HD| \Rightarrow |HD| = 1 \text{ cm}$$

$$x^2 = 1 \cdot 5 \Rightarrow x = \sqrt{5} \text{ cm olur.}$$

Cevap A

TEST - 5

1.

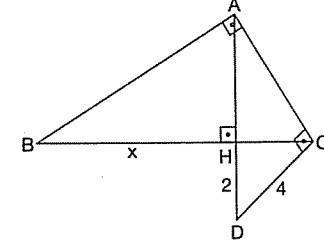


[AB] ⊥ [AC]
[AB] ⊥ [BD]
[AD] ⊥ [BC]
|AH| = 3√2 cm
|HC| = 9 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) √11 B) √13 C) √17 D) √19 E) √22

3.

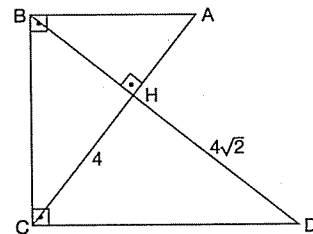


[AB] ⊥ [AC]
[AC] ⊥ [CD]
[AD] ⊥ [BC]
|CD| = 4 cm
|HD| = 2 cm

Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) 2√3 B) 3√2 C) 4√3
D) 5√2 E) 6√3

2.

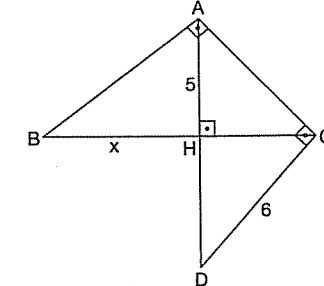


[AB] ⊥ [BC]
[BC] ⊥ [CD]
[AC] ⊥ [BD]
|HD| = 4√2 cm
|HC| = 4 cm

Yukarıdaki verilere göre, |AH| = x kaç cm dir?

- A) 2 B) 2√3 C) 3 D) 3√2 E) 4

4.



[AB] ⊥ [AC]
[AC] ⊥ [DC]
[AD] ⊥ [BC]
|DC| = 6 cm
|AH| = 5 cm

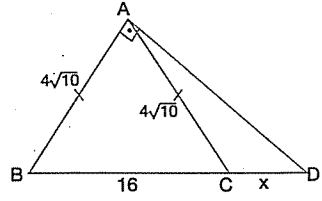
Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) $\frac{5\sqrt{5}}{2}$ B) $\frac{5\sqrt{5}}{3}$ C) $\frac{5\sqrt{5}}{4}$
D) $\frac{5\sqrt{5}}{6}$ E) $\frac{5\sqrt{5}}{7}$

1. E 2. A 3. E 4. A

Öklid Bağlantıları - VI

Örnek



ABD bir dik üçgen

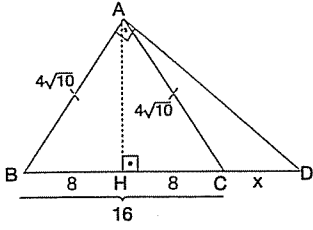
$$[AB] \perp [AD]$$

$$|AB| = |AC| = 4\sqrt{10} \text{ cm}, |BC| = 16 \text{ cm}$$

Yukardaki verilene göre, $|CD| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

Çözüm



ABC ikizkenar üçgeninde A köşesinden BD ye dik çizersek ABC ikizkenar olduğundan $|BH| = |HC| = 8$ br olur.

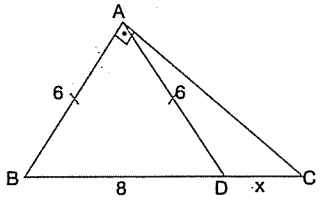
ABD üçgeninde öklid uygularsak,

$$\begin{aligned} |AB|^2 &= |BH| \cdot |BD| \Rightarrow (4\sqrt{10})^2 = 8 \cdot (16 + x) \\ &\Rightarrow 160 = 8 \cdot (16 + x) \\ &\Rightarrow 20 = 16 + x \\ &\Rightarrow x = 4 \text{ br olur.} \end{aligned}$$

Cevap C

TEST - 6

1.



ABC dik üçgen

$$[AB] \perp [AC]$$

$$|AB| = 6 \text{ cm}$$

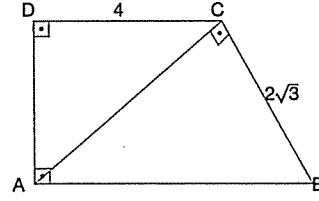
$$|AD| = 6 \text{ cm}$$

$$|BD| = 8 \text{ cm}$$

Yukardaki verilene göre, $|DC| = x$ kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

3.



ABC dik üçgen

$$[DC] \perp [AD]$$

$$[DA] \perp [AB]$$

$$[AC] \perp [CB]$$

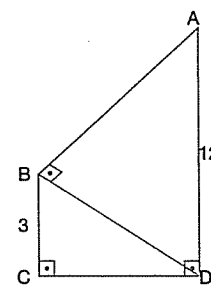
$$|DC| = 4 \text{ cm}$$

$$|CB| = 2\sqrt{3} \text{ cm}$$

Yukardaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

4.



ABCD bir dörtgen

$$[AD] \perp [CD]$$

$$[BC] \perp [CD]$$

$$[AB] \perp [BD]$$

$$|AD| = 12 \text{ cm}$$

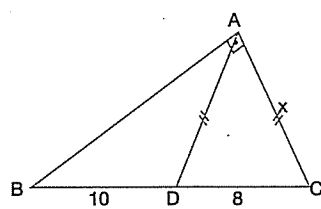
$$|BC| = 3 \text{ cm}$$

Yukardaki verilene göre, $|CD| = x$ kaç cm dir?

- A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $3\sqrt{2}$
D) $3\sqrt{3}$ E) $4\sqrt{2}$

sonuç yayınları

2.



ABC dik üçgen

$$[AB] \perp [AC]$$

$$|AC| = |AD|$$

$$|DC| = 8 \text{ cm}$$

$$|BD| = 10 \text{ cm}$$

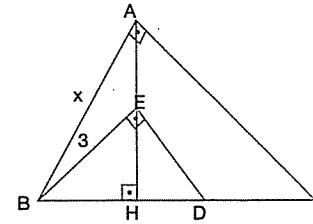
Yukardaki verilene göre, $|AC| = x$ kaç cm dir?

- A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $3\sqrt{3}$
D) $6\sqrt{2}$ E) $7\sqrt{2}$

1. E 2. D 3. C 4. D

Öklid Bağlantıları - VII

Örnek



ABC bir dik üçgen

$$[AH] \perp [BC]$$

$$[BE] \perp [ED]$$

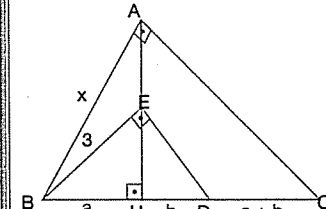
$$|BD| = |DC|$$

$$|BE| = 3 \text{ cm}$$

Yukardaki verilene göre, $|AB| = x$ kaç cm dir?

- A) $3\sqrt{2}$ B) $4\sqrt{5}$ C) $5\sqrt{2}$
D) $6\sqrt{2}$ E) $7\sqrt{2}$

Çözüm



$|BH| = a$ ve $|HD| = b$ diyelim.
 $|BD| = |DC| = a + b$ olur.

BED üçgeninde öklid uygularsak,
 $9 = a \cdot (a + b)$

ABC üçgeninde öklid uygularsak,

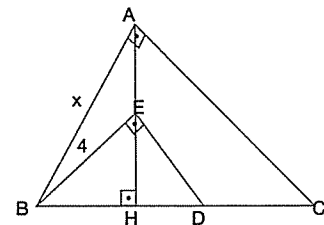
$$x^2 = a \cdot (2a + 2b) \Rightarrow x^2 = 2 \cdot a \cdot (a + b)$$

$$\Rightarrow x^2 = 2 \cdot 9 \Rightarrow x = 3\sqrt{2} \text{ cm olur.}$$

Cevap A

TEST - 7

1.



ABC dik üçgen

$$[AH] \perp [BC]$$

$$[BE] \perp [ED]$$

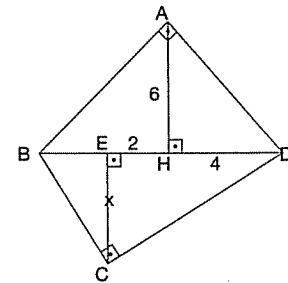
$$|BD| = |DC|$$

$$|BE| = 4 \text{ cm}$$

Yukardaki verilene göre, $|AB| = x$ kaç cm dir?

- A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) $6\sqrt{2}$
D) $7\sqrt{2}$ E) $8\sqrt{2}$

3.



ABCD bir dörtgen

$$[AB] \perp [AD]$$

$$[BC] \perp [CD]$$

$$[CE] \perp [BD]$$

$$[AH] \perp [BD]$$

$$|EH| = 2 \text{ cm}$$

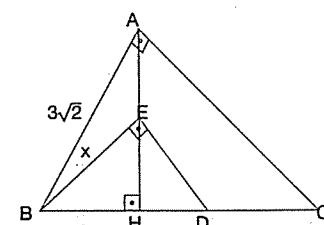
$$|HD| = 4 \text{ cm}$$

$$|AH| = 6 \text{ cm}$$

Yukardaki verilene göre, $|EC| = x$ kaç cm dir?

- A) $\sqrt{41}$ B) $\sqrt{42}$ C) $\sqrt{43}$ D) $\sqrt{46}$ E) $\sqrt{47}$

2.



ABC dik üçgen

$$[AH] \perp [BC]$$

$$[BE] \perp [ED]$$

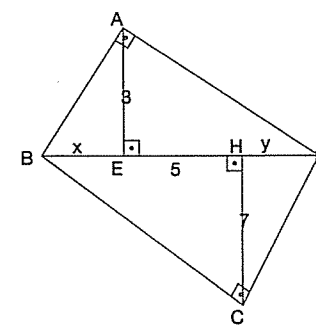
$$|BD| = |DC|$$

$$|BA| = 3\sqrt{2} \text{ cm}$$

Yukardaki verilene göre, $|BE| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

4.



ABCD bir dörtgen

$$[AB] \perp [AD]$$

$$[BC] \perp [CD]$$

$$[CH] \perp [BD]$$

$$[AE] \perp [BD]$$

$$|AE| = 3 \text{ cm}$$

$$|HC| = 7 \text{ cm}$$

$|EH| = 5 \text{ cm}$, $|BE| = x$, $|HD| = y$

Yukardaki verilene göre, $y - x$ kaç cm dir?

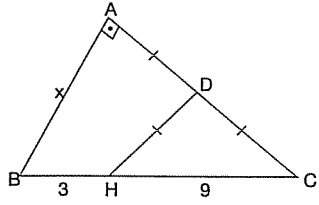
- A) 12 B) 11 C) 10 D) 9 E) 8

sonuç yayınları

1. A 2. B 3. B 4. E

Öklid Bağlantıları - VIII

Örnek



ABC dik üçgen

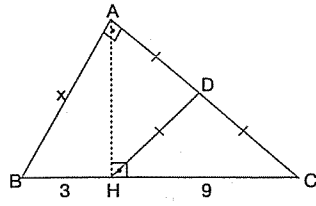
$[AB] \perp [AC]$

$|AD| = |DC| = |HD|$, $|BH| = 3$ cm, $|HC| = 9$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

Çözüm



A ile H yi birleştirsek,
 $[AH] \perp [HC]$ olur.
(Muhteşem üçlü)

ABC üçgeninde öklid uygulanırsa,

$$x^2 = 3 \cdot (3 + 9) \Rightarrow x^2 = 3 \cdot 12$$

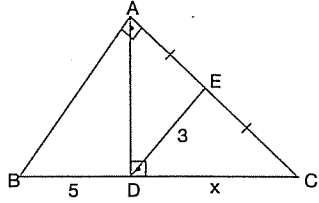
$$\Rightarrow x^2 = 36$$

$$\Rightarrow x = 6 \text{ cm olur.}$$

Cevap E

TEST - 8

1.



ABC dik üçgen

$[AD] \perp [BC]$

$|AE| = |EC|$

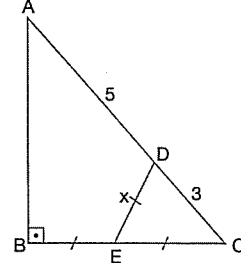
$|DE| = 3$ cm

$|BD| = 5$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

3.



ABC dik üçgen

$[AB] \perp [BC]$

$|BE| = |EC| = |ED|$

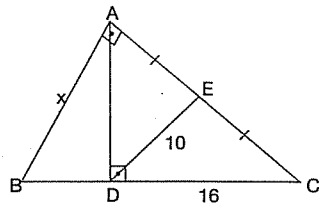
$|DC| = 3$ cm

$|AD| = 5$ cm

Yukarıdaki verilene göre, $|DE| = x$ kaç cm dir?

- A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\sqrt{6}$
D) $2\sqrt{6}$ E) $5\sqrt{2}$

2.



ABC dik üçgen

$[AD] \perp [BC]$

$|AE| = |EC|$

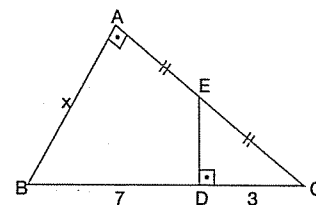
$|DE| = 10$ cm

$|DC| = 16$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 8 B) 10 C) 13 D) 15 E) 17

4.



ABC dik üçgen

$[ED] \perp [BC]$

$|AE| = |EC|$

$|DC| = 3$ cm

$|BD| = 7$ cm

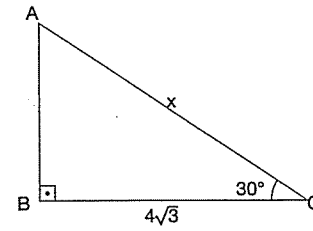
Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) $\sqrt{10}$ B) $2\sqrt{5}$ C) $2\sqrt{10}$
D) $3\sqrt{5}$ E) $4\sqrt{5}$

1. B 2. D 3. C 4. C

30 - 60 - 90 Üçgeni - I

Örnek



ABC dik üçgen

$[AB] \perp [BC]$

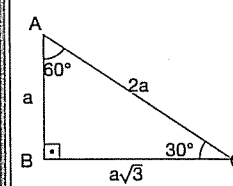
$m(\widehat{ACB}) = 30^\circ$

$|BC| = 4\sqrt{3}$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 4 B) 6 C) 8 D) 9 E) 10

Çözüm



30° nin karşısındaki kenarın uzunluğu, hipotenüs uzunluğunun yarısına eşittir.

60° nin karşısındaki kenarın uzunluğu, 30° nin karşısındaki kenarın uzunluğunun $\sqrt{3}$ katına eşittir.

$$|BC| = |AB| \cdot \sqrt{3}$$

$$4\sqrt{3} = |AB| \cdot \sqrt{3}$$

$$\Rightarrow |AB| = 4 \text{ cm}$$

$$|AC| = 2 \cdot |AB|$$

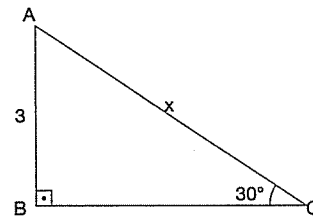
$$|AC| = 2 \cdot 4$$

$$|AC| = 8 \text{ cm olur.}$$

Cevap C

TEST - 1

1.



ABC dik üçgen

$[AB] \perp [BC]$

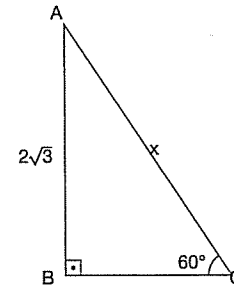
$m(\widehat{ACB}) = 30^\circ$

$|AB| = 3$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 4 B) $3\sqrt{3}$ C) 5 D) 6 E) $4\sqrt{3}$

3.



ABC dik üçgen

$[AB] \perp [CB]$

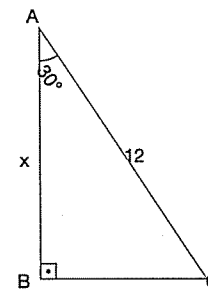
$m(\widehat{ACB}) = 60^\circ$

$|AB| = 2\sqrt{3}$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 4 B) $3\sqrt{3}$ C) 6 D) $4\sqrt{3}$ E) $6\sqrt{3}$

2.



ABC bir üçgen

$[AB] \perp [BC]$

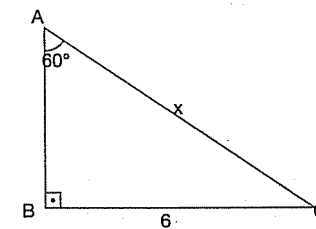
$m(\widehat{BAC}) = 30^\circ$

$|AC| = 12$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) $3\sqrt{3}$ B) 5 C) $4\sqrt{3}$ D) 6 E) $6\sqrt{3}$

4.



ABC dik üçgen

$[AB] \perp [BC]$

$m(\widehat{BAC}) = 60^\circ$

$|BC| = 6$ cm

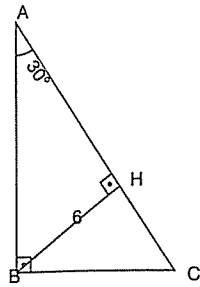
Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 4 B) $3\sqrt{3}$ C) $4\sqrt{3}$ D) $6\sqrt{3}$ E) 12

1. D 2. E 3. A 4. C

30 - 60 - 90 Üçgeni - II

Örnek

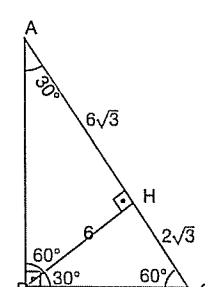


ABC bir dik üçgen
[BH] $\perp$ [AC]
 $m(\widehat{BAC}) = 30^\circ$
|BH| = 6 cm

Yukarıdaki verilere göre, |AC| kaç cm dir?

- A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $4\sqrt{3}$
D) $6\sqrt{3}$ E) $8\sqrt{3}$

Çözüm



$\widehat{ABH}$ dik ve (30 - 60 - 90 üçgeni)
|BH| = 6 $\Rightarrow$ |AH| = $\sqrt{3} \cdot |BH|$
 $\Rightarrow$ |AH| = $\sqrt{3} \cdot 6$
 $\Rightarrow$ |AH| = $6\sqrt{3}$

$\widehat{BHC}$ dik ve (30 - 60 - 90 üçgeni)

$$|BH| = \sqrt{3} \cdot |HC| \Rightarrow 6 = \sqrt{3} \cdot |HC|$$

$$\Rightarrow |HC| = \frac{6}{\sqrt{3}} = \frac{6\sqrt{3}}{3}$$

$$\Rightarrow |HC| = 2\sqrt{3}$$

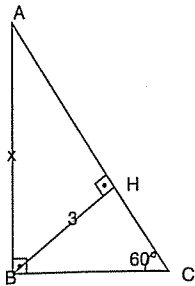
$$|AC| = |AH| + |HC| = 6\sqrt{3} + 2\sqrt{3} = 8\sqrt{3} \text{ olur.}$$

Cevap E

TEST - 2

1. ABC bir dik üçgen

[BH] $\perp$ [AC]
 $m(\widehat{BCA}) = 60^\circ$
|BH| = 3 cm



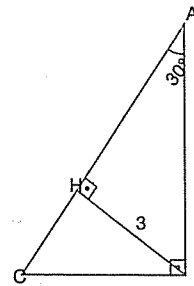
Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 4 B) $3\sqrt{3}$ C) 5 D) 6 E) $4\sqrt{3}$

3.

ABC bir dik üçgen

[BH] $\perp$ [AC]
 $m(\widehat{CAB}) = 30^\circ$
|HB| = 3 cm

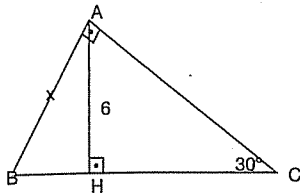


Yukarıdaki verilere göre, |AC| kaç cm dir?

- A) $\sqrt{3}$ B) $2\sqrt{3}$ C) 4 D) 6 E) $4\sqrt{3}$

2.

ABC bir dik üçgen
[AH] $\perp$ [BC]
 $m(\widehat{BCA}) = 30^\circ$
|AH| = 6 cm

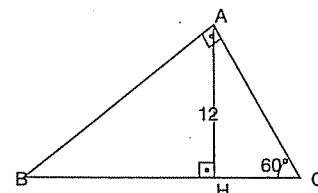


Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) $3\sqrt{3}$ B) 5 C) $4\sqrt{3}$ D) 6 E) $6\sqrt{3}$

4.

ABC bir dik üçgen
[AH] $\perp$ [BC]
 $m(\widehat{BCA}) = 60^\circ$
|AH| = 12 cm



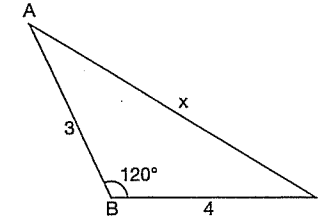
Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) $16\sqrt{3}$ B) $8\sqrt{3}$ C) $4\sqrt{3}$ D) 6 E) 4

1. D 2. C 3. E 4. A

30 - 60 - 90 Üçgeni - III

Örnek

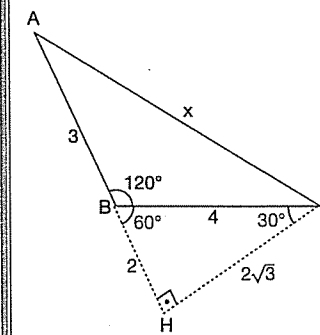


ABC bir üçgen
 $m(\widehat{ABC}) = 120^\circ$
|AB| = 3 cm
|BC| = 4 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $\sqrt{37}$ B) 6 C) $3\sqrt{3}$
D) $12\sqrt{6}$ E) $2\sqrt{5}$

Çözüm



[AB] nin uzantısına C noktasından dik çizersek, AHC dik üçgenini elde edebiliriz.

$$m(\widehat{HBC}) = 180^\circ - 120^\circ = 60^\circ$$

$$m(\widehat{BCH}) = 30^\circ$$

BHC 30 - 60 - 90 üçgenidir.

Buna göre, |BC| = 4 $\Rightarrow$ |BH| = $\frac{4}{2} = 2$ (30° nin karşısı)

|BH| = 2 $\Rightarrow$ |HC| = $2\sqrt{3}$ (60° nin karşısı)

AHC dik üçgeninde, |AC|² = |AH|² + |HC|² (Pisagor)

$$x^2 = 5^2 + (2\sqrt{3})^2 \Rightarrow x^2 = 25 + 12 \Rightarrow x^2 = 37$$

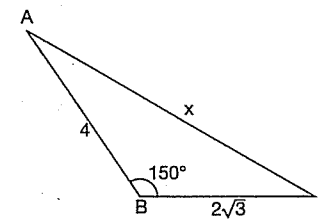
$$\Rightarrow x = \sqrt{37} \text{ olur.}$$

Cevap A

TEST - 3

1. ABC bir üçgen

$m(\widehat{ABC}) = 150^\circ$
|AB| = 4 cm
|BC| = $2\sqrt{3}$ cm

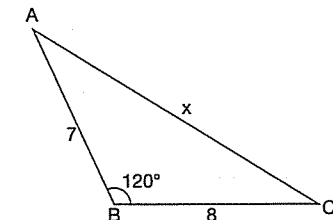


Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $2\sqrt{13}$ B) 8 C) $4\sqrt{5}$ D) $4\sqrt{6}$ E) 10

3. ABC bir üçgen

$m(\widehat{ABC}) = 120^\circ$
|AB| = 7 cm
|BC| = 8 cm

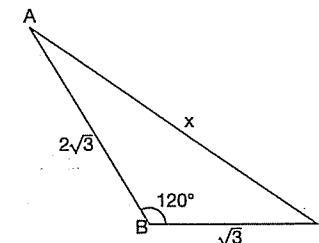


Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) 10 B) 12 C) 13 D) 15 E) 17

2. ABC bir üçgen

$m(\widehat{ABC}) = 120^\circ$
|AB| = $2\sqrt{3}$ cm
|BC| = $\sqrt{3}$ cm

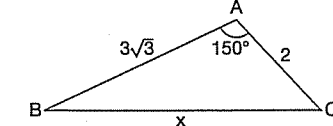


Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $\sqrt{7}$ B) $\sqrt{11}$ C) $\sqrt{13}$ D) $\sqrt{17}$ E) $\sqrt{21}$

4. ABC bir üçgen

$m(\widehat{BAC}) = 150^\circ$
|AB| = $3\sqrt{3}$ cm
|AC| = 2 cm



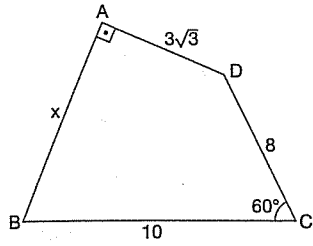
Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) $4\sqrt{3}$ B) 7 C) $5\sqrt{3}$ D) 9 E) 10

1. A 2. E 3. C 4. B

30 - 60 - 90 Üçgeni - IV

Örnek

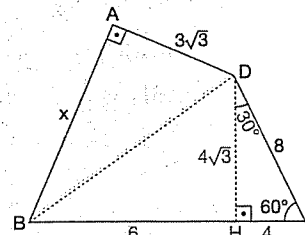


ABCD bir dörtgen
 $[AB] \perp [AD]$
 $m(\widehat{DCB}) = 60^\circ$
 $|AD| = 3\sqrt{3}$ br
 $|DC| = 8$ br
 $|BC| = 10$ br

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) $3\sqrt{5}$ B) $4\sqrt{3}$ C) 7
 D) $\sqrt{57}$ E) 8

Çözüm



$[BC]$ ye D noktasından bir dikme indirirsek DHC dik üçgeni oluşur.
 $|DC| = 8$ br
 $\Rightarrow |HC| = 4$ br
 $\Rightarrow |DH| = 4\sqrt{3}$ br olur. (30 - 60 - 90)

$|BC| = 10$ br $\Rightarrow |BH| = 10 - 4 = 6$ br olur.

BHD dik üçgeninde, $|BD|^2 = |BH|^2 + |DH|^2$ (Pisagor)

$$|BD|^2 = 6^2 + (4\sqrt{3})^2 \Rightarrow |BD|^2 = 36 + 48 = 84$$

$$\Rightarrow |BD| = 2\sqrt{21}$$
 br olur.

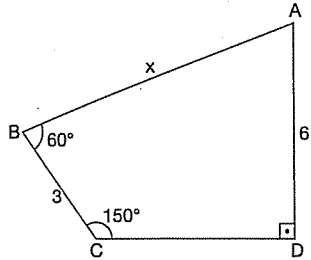
ABD dik üçgeninde, $|BD|^2 = x^2 + |AD|^2$ (Pisagor)

$$(2\sqrt{21})^2 = x^2 + (3\sqrt{3})^2 \Rightarrow x^2 = 57 \Rightarrow x = \sqrt{57}$$
 br olur.

Cevap D

TEST - 4

1.

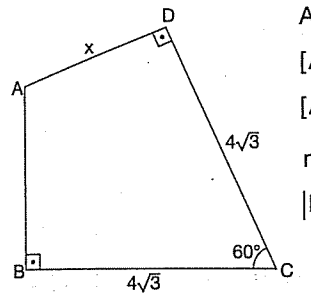


ABCD bir dörtgen
 $[AD] \perp [CD]$
 $m(\widehat{ABC}) = 60^\circ$
 $m(\widehat{BCD}) = 150^\circ$
 $|BC| = 3$ br
 $|AD| = 6$ br

Yukarıdaki verilere göre, $|AB| = x$ kaç br dir?

- A) 9 B) 8 C) 7 D) 6 E) 5

2.

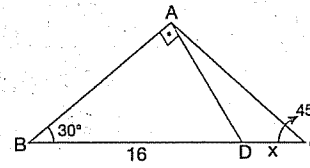


ABCD bir dörtgen
 $[AB] \perp [BC]$
 $[AD] \perp [DC]$
 $m(\widehat{BCD}) = 60^\circ$
 $|BC| = |DC| = 4\sqrt{3}$ br

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.

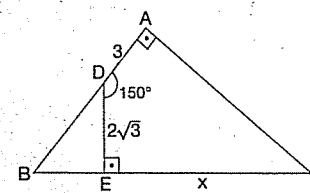


ABC bir üçgen
 $[AB] \perp [AD]$
 $m(\widehat{ABC}) = 30^\circ$
 $m(\widehat{ACB}) = 45^\circ$
 $|BD| = 16$ br

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) $3\sqrt{3}$ B) $3\sqrt{3} + 3$ C) 4
 D) $4\sqrt{3} + 2$ E) $4\sqrt{3} - 4$

4.



ABC dik üçgen
 $[DE] \perp [BC]$
 $m(\widehat{ADE}) = 150^\circ$
 $|DE| = 2\sqrt{3}$ cm
 $|AD| = 3$ cm

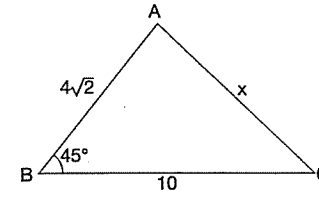
Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

1. A 2. C 3. E 4. B

45 - 45 - 90 Üçgeni - I

Örnek

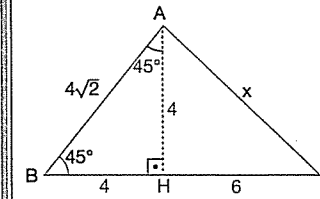


ABC bir üçgen
 $m(\widehat{ABC}) = 45^\circ$
 $|AB| = 4\sqrt{2}$ br
 $|BC| = 10$ br

Yukarıdaki verilere göre, $|AC| = x$ kaç br dir?

- A) $3\sqrt{3}$ B) 6 C) 7
 D) $2\sqrt{13}$ E) 8

Çözüm



A noktasından $[BC]$ ye dik çizersek AHC dik üçgeni ve ABH (45 - 45 - 90) üçgeni oluşur.

ABH üçgeninde, $|BH| = |AH| = \frac{4\sqrt{2}}{\sqrt{2}} = 4$ br dir.

$|HC| = 10 - 4 = 6$ br olur.

AHC dik üçgeninde, $|AC|^2 = |AH|^2 + |HC|^2$ (Pisagor)

$$x^2 = 4^2 + 6^2 \Rightarrow x^2 = 4^2 + 6^2$$

$$\Rightarrow x^2 = 16 + 36$$

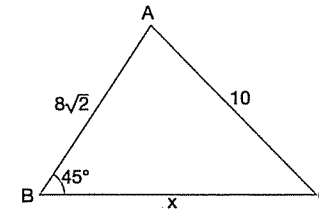
$$\Rightarrow x^2 = 52$$

$$\Rightarrow x = 2\sqrt{13}$$
 br olur.

Cevap D

TEST - 5

1.

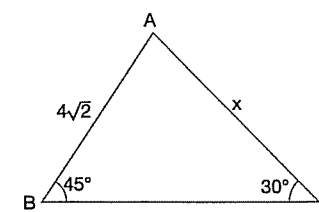


ABC bir üçgen
 $m(\widehat{ABC}) = 45^\circ$
 $|AB| = 8\sqrt{2}$ br
 $|AC| = 10$ br

Yukarıdaki verilere göre, $|BC| = x$ kaç br dir?

- A) 10 B) 12 C) 14 D) 16 E) 20

2.

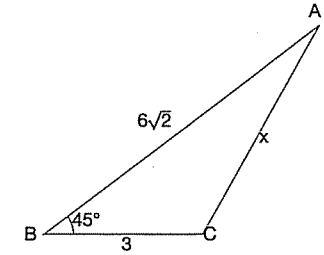


ABC bir üçgen
 $m(\widehat{ABC}) = 45^\circ$
 $m(\widehat{ACB}) = 30^\circ$
 $|AB| = 4\sqrt{2}$ br

Yukarıdaki verilere göre, $|AC| = x$ kaç br dir?

- A) 4 B) 6 C) 8 D) 10 E) 11

3.

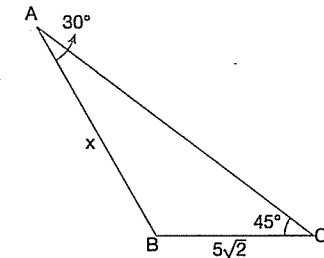


ABC bir üçgen
 $m(\widehat{ABC}) = 45^\circ$
 $|AB| = 6\sqrt{2}$ cm
 $|BC| = 3$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) $2\sqrt{5}$ B) $3\sqrt{5}$ C) $4\sqrt{5}$
 D) $5\sqrt{5}$ E) $6\sqrt{5}$

4.



ABC bir üçgen
 $m(\widehat{ACB}) = 45^\circ$
 $m(\widehat{BAC}) = 30^\circ$
 $|BC| = 5\sqrt{2}$ cm

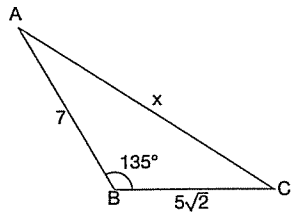
Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 5 B) 7 C) 8 D) 10 E) 12

1. C 2. C 3. B 4. D

45 - 45 - 90 Üçgeni - II

Örnek



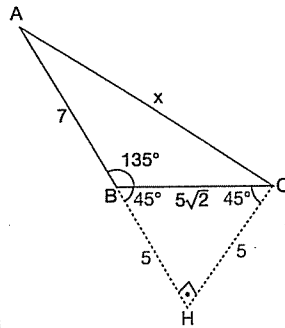
ABC bir üçgen
 $m(\widehat{ABC}) = 135^\circ$
 $|AB| = 7$ br
 $|BC| = 5\sqrt{2}$ br

Yukarıdaki verilere göre, $|AC| = x$ kaç br dir?

- A) 5 B) 7 C) 8 D) 12 E) 13



Çözüm



[AB] nin uzantısına C noktasında dik çizerek AHC dik üçgeni elde ederiz.

$$m(\widehat{HBC}) = 180^\circ - 135^\circ = 45^\circ \text{ olur.}$$

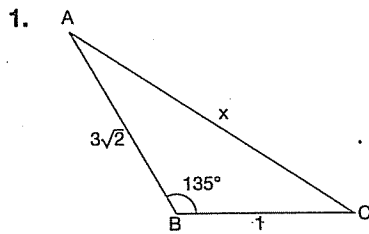
$m(\widehat{HCB}) = 45^\circ$ olduğundan, BHC ikizkenar dik üçgendir.

$$|BC| = |BH| \cdot \sqrt{2} \Rightarrow 5\sqrt{2} = |BH| \cdot \sqrt{2} \Rightarrow |BH| = |HC| = 5 \text{ br olur.}$$

$$\widehat{AHC} \text{ de, } |AC|^2 = |AH|^2 + |HC|^2 \Rightarrow x^2 = 12^2 + 5^2 \quad (5 - 12 - 13) \Rightarrow x = 13 \text{ olur.}$$

Cevap E

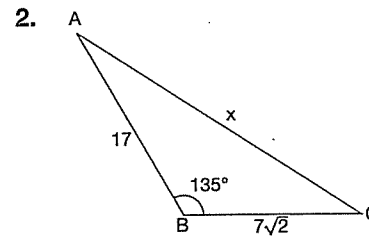
TEST - 6



ABC bir üçgen
 $m(\widehat{ABC}) = 135^\circ$
 $|AB| = 3\sqrt{2}$ cm
 $|BC| = 1$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

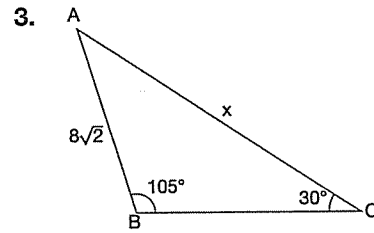
- A) 5 B) 6 C) 7 D) 8 E) 10



ABC bir üçgen
 $m(\widehat{ABC}) = 135^\circ$
 $|AB| = 17$ cm
 $|BC| = 7\sqrt{2}$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

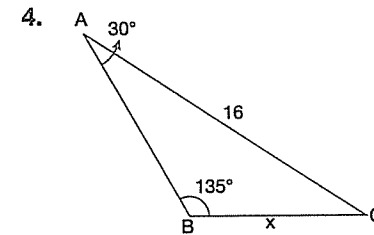
- A) 15 B) 17 C) 20 D) 23 E) 25



ABC bir üçgen
 $m(\widehat{ABC}) = 105^\circ$
 $m(\widehat{ACB}) = 30^\circ$
 $|AB| = 8\sqrt{2}$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) $4 + 4\sqrt{3}$ B) $5 + 5\sqrt{3}$ C) $6 + 6\sqrt{3}$
D) $7 + 7\sqrt{3}$ E) $8 + 8\sqrt{3}$



ABC bir üçgen
 $m(\widehat{ABC}) = 135^\circ$
 $m(\widehat{CAB}) = 30^\circ$
 $|AC| = 16$ cm

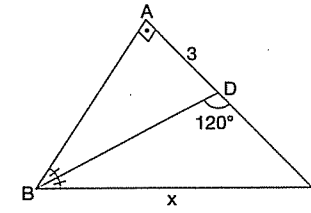
Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) $6\sqrt{2}$ B) $7\sqrt{2}$ C) $8\sqrt{2}$
D) $9\sqrt{2}$ E) $10\sqrt{2}$

1. A 2. E 3. E 4. C

30 - 120 - 30 Üçgeni

Örnek



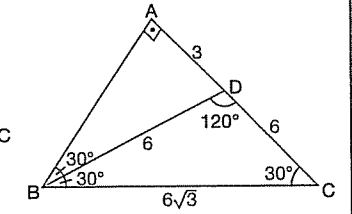
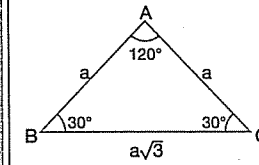
ABC dik üçgen
 $[AB] \perp [AC]$
 $[BD]$ açıortay
 $m(\widehat{BDC}) = 120^\circ$
 $|AD| = 3$ br

Yukarıdaki verilere göre, $|BC| = x$ kaç br dir?

- A) $3\sqrt{3}$ B) $4\sqrt{3}$ C) $5\sqrt{3}$
D) $6\sqrt{3}$ E) $8\sqrt{3}$



Çözüm



ABD dik üçgeninde,

$$|AD| = 3 \text{ br} \Rightarrow |BD| = 6 \text{ br dir. } (30 - 60 - 90)$$

BDC üçgeninde,

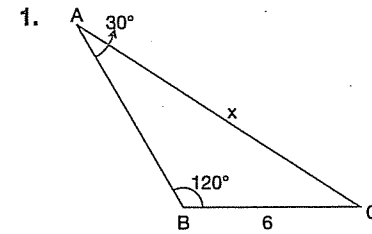
$m(\widehat{DBC}) = m(\widehat{DCB})$ olduğundan,

$$|BD| = |DC| = 6 \text{ br dir.}$$

$$|BD| = |DC| = 6 \text{ br} \Rightarrow |BC| = 6\sqrt{3} \text{ br dir. } (30 - 120 - 30)$$

Cevap D

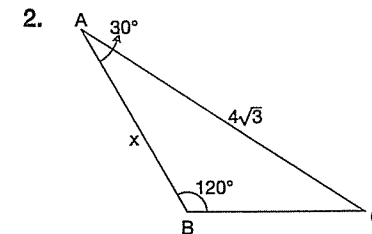
TEST - 7



ABC bir üçgen
 $m(\widehat{ABC}) = 120^\circ$
 $m(\widehat{BAC}) = 30^\circ$
 $|BC| = 6$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

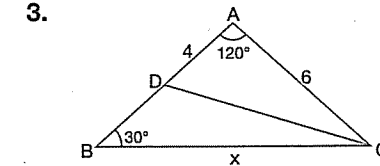
- A) $5\sqrt{3}$ B) $6\sqrt{3}$ C) $7\sqrt{3}$
D) $8\sqrt{3}$ E) $9\sqrt{3}$



ABC bir üçgen
 $m(\widehat{ABC}) = 120^\circ$
 $m(\widehat{BAC}) = 30^\circ$
 $|AC| = 4\sqrt{3}$ cm

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

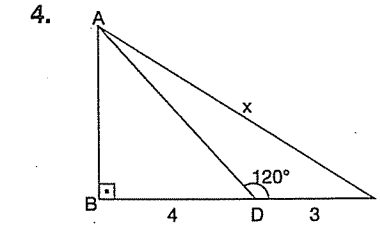
- A) 4 B) 6 C) 8 D) 10 E) 12



ABC bir üçgen
 $m(\widehat{ABC}) = 30^\circ$
 $m(\widehat{BAC}) = 120^\circ$
 $|AD| = 4$ cm
 $|AC| = 6$ cm

Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) $4\sqrt{3}$ B) $5\sqrt{3}$ C) $6\sqrt{3}$
D) $7\sqrt{3}$ E) $8\sqrt{3}$



ABC dik üçgen
 $[AB] \perp [BC]$
 $m(\widehat{ADC}) = 120^\circ$
 $|BD| = 4$ cm
 $|DC| = 3$ cm

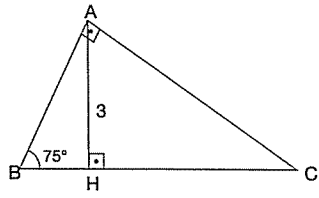
Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) $\sqrt{61}$ B) $\sqrt{71}$ C) $\sqrt{83}$ D) $\sqrt{91}$ E) $\sqrt{97}$

1. B 2. A 3. C 4. E

15 - 75 - 90 Üçgeni - I

Örnek

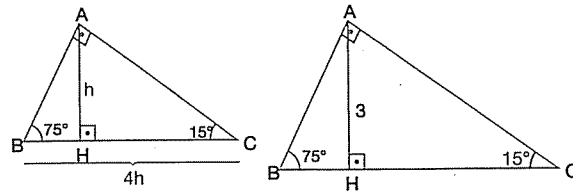


ABC bir dik
üçgen
[AH] $\perp$ [BC]
 $m(\widehat{ABC}) = 75^\circ$
|AH| = 3 br

Yukarıdaki verilene göre, |BC| kaç br dir?

- A) 6 B) 9 C) 10 D) 12 E) 13

Çözüm



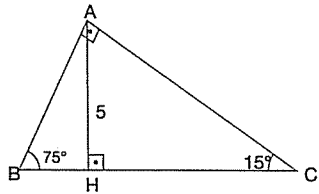
Buna göre, |BC| = 4 · |AH| $\Rightarrow$ |BC| = 4 · 3

$\Rightarrow$ |BC| = 12 br olur.

Cevap D

TEST - 8

1.

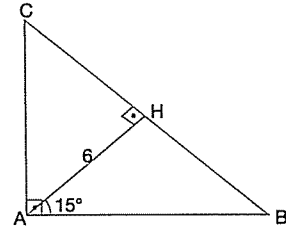


ABC dik üçgen
[AH] $\perp$ [BC]
 $m(\widehat{ABC}) = 75^\circ$
 $m(\widehat{ACB}) = 15^\circ$
|AH| = 5 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 10 B) 12 C) 15 D) 17 E) 20

3.

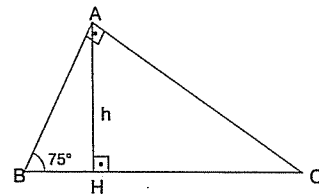


ABC dik üçgen
[AH] $\perp$ [BC]
 $m(\widehat{HAB}) = 15^\circ$
|AH| = 6 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 16 B) 18 C) 22 D) 24 E) 26

2.

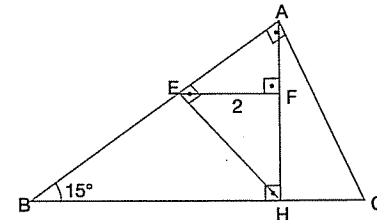


ABC dik üçgen
[AH] $\perp$ [BC]
 $m(\widehat{ABC}) = 75^\circ$
|BC| = 16 cm

Yukarıdaki verilene göre, |AH| = h kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



ABC dik üçgen
[AH] $\perp$ [BC], [HE] $\perp$ [AB], [EF] $\perp$ [AH]
 $m(\widehat{ABC}) = 15^\circ$
|EF| = 2 cm

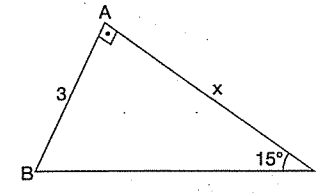
Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 36 B) 32 C) 28 D) 24 E) 20

1. E 2. A 3. D 4. B

15 - 75 - 90 Üçgeni - II

Örnek

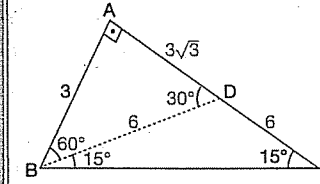


ABC bir dik
üçgen
[AB] $\perp$ [AC]
 $m(\widehat{ACB}) = 15^\circ$
|AB| = 3 br

Yukarıdaki verilene göre, |AC| = x kaç br dir?

- A) $3 + 2\sqrt{3}$ B) $4 + 3\sqrt{3}$ C) $6 + 3\sqrt{3}$
D) $7 + 4\sqrt{3}$ E) $8 + 4\sqrt{3}$

Çözüm



$m(\widehat{CBD}) = 15^\circ$
çizersek
 $m(\widehat{ABD}) = 60^\circ$
olur.

ABD üçgeninde ($30 - 60 - 90$)

|AD| = $\sqrt{3} \cdot |AB| = 3\sqrt{3}$ br

|BD| = 2 · |AB| = 6 br

BDC ikizkenar üçgeninde,

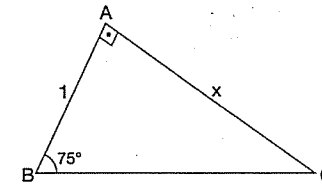
|BD| = |DC| = 6 br olur.

Dolayısıyla, |AC| = x = ($3\sqrt{3} + 6$) br olur.

Cevap C

TEST - 9

1.

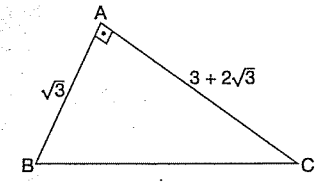


ABC dik üçgen
[BA] $\perp$ [AC]
 $m(\widehat{ABC}) = 75^\circ$
|AB| = 1 br

Yukarıdaki verilene göre, |AC| = x kaç br dir?

- A) $2 + \sqrt{3}$ B) $2 + 2\sqrt{3}$ C) $3 + \sqrt{3}$
D) $3 + 2\sqrt{3}$ E) $4 + 2\sqrt{3}$

3.

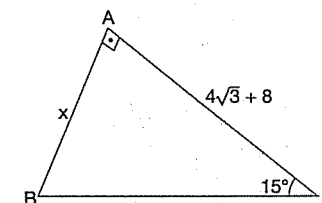


ABC dik üçgen
[AB] $\perp$ [AC]
|AB| = $\sqrt{3}$ br
|AC| = $3 + 2\sqrt{3}$ br

Yukarıdaki verilene göre, $m(\widehat{ABC})$ kaç derecedir?

- A) 15 B) 30 C) 45 D) 60 E) 75

2.

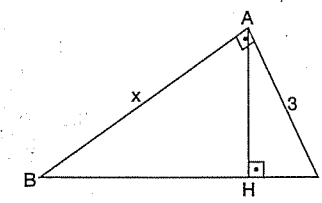


ABC dik üçgen
[AB] $\perp$ [AC]
 $m(\widehat{ACB}) = 15^\circ$
|AC| = $4\sqrt{3} + 8$ br

Yukarıdaki verilene göre, |AB| = x kaç br dir?

- A) 3 B) 4 C) 5 D) 6 E) 8

4.



ABC dik üçgen
[AH] $\perp$ [BC]
|BC| = 4 · |AH|
|AB| > |AC|
|AC| = 3 br

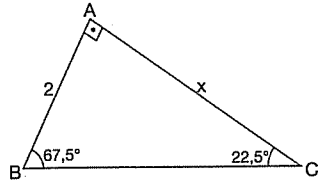
Yukarıdaki verilene göre, |AB| = x kaç br dir?

- A) $4 + 3\sqrt{3}$ B) $4 + 4\sqrt{3}$ C) $6 + 3\sqrt{3}$
D) $6 + 4\sqrt{3}$ E) $8 + 4\sqrt{3}$

1. A 2. B 3. E 4. C

22,5 - 67,5 - 90 Üçgeni

Örnek



ABC dik üçgen

$[BA] \perp [AC]$

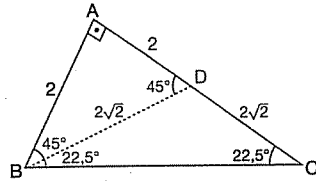
$m(\widehat{ABC}) = 67,5^\circ$, $m(\widehat{ACB}) = 22,5^\circ$

$|AB| = 2$ br

Yukarıdaki verilene göre, $|AC| = x$ kaç br dir?

- A) $\sqrt{2} + 1$ B) $2\sqrt{2} + 2$ C) $3\sqrt{2} + 3$
D) $4\sqrt{2} + 4$ E) $5\sqrt{2} + 5$

Çözüm



$m(\widehat{CBD}) = 22,5^\circ$

çizersek,

$m(\widehat{ABD}) = 45^\circ$ olur.

ABD üçgeninde, $(45 - 45 - 90)$

$|AB| = |AD| = 2$ br

$|BD| = \sqrt{2} \cdot |AB| = 2\sqrt{2}$ br

BDC ikizkenar üçgeninde,

$|BD| = |BC| = 2\sqrt{2}$ br olur.

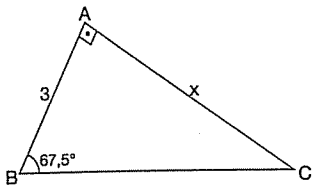
Dolayısıyla, $|AC| = |AD| + |DC|$

$x = 2 + 2\sqrt{2}$ br olur.

Cevap B

TEST - 10

1.



ABC dik üçgen

$[AB] \perp [AC]$

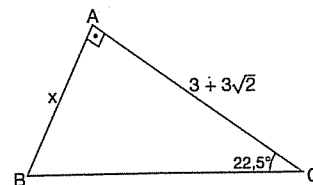
$m(\widehat{ABC}) = 67,5^\circ$

$|AB| = 3$ br

Yukarıdaki verilene göre, $|AC| = x$ kaç br dir?

- A) $3 + 3\sqrt{2}$ B) $4 + 4\sqrt{2}$ C) $5 + 5\sqrt{2}$
D) $6 + 6\sqrt{2}$ E) $7 + 7\sqrt{2}$

2.



ABC dik üçgen

$[AB] \perp [AC]$

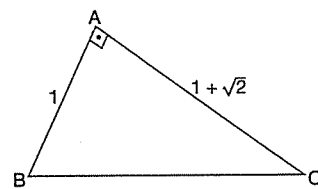
$m(\widehat{ACB}) = 22,5^\circ$

$|AC| = 3 + 3\sqrt{2}$ br

Yukarıdaki verilene göre, $|AB| = x$ kaç br dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

3.



ABC dik üçgen

$[AB] \perp [AC]$

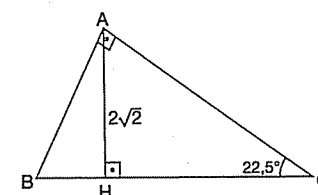
$|AB| = 1$ br

$|AC| = 1 + \sqrt{2}$ br

Yukarıdaki verilene göre, $m(\widehat{C})$ kaç derecedir?

- A) 15 B) 22,5 C) 45 D) 67,5 E) 75

4.



ABC dik üçgen

$[AH] \perp [BC]$

$m(\widehat{ACB}) = 22,5^\circ$

$|AH| = 2\sqrt{2}$ br

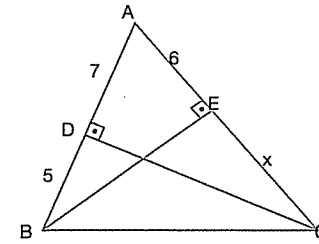
Yukarıdaki verilene göre, $|BC|$ kaç br dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

1. A 2. D 3. B 4. C

Açılarına Göre Üçgenler Karma

Örnek



ABC bir üçgen

$[BE] \perp [AC]$

$[DC] \perp [AB]$

$|AD| = 7$ br

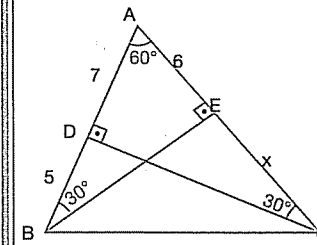
$|DB| = 5$ br

$|AE| = 6$ br

Yukarıdaki verilene göre, $|EC| = x$ kaç br dir?

- A) 8 B) 10 C) 12 D) 14 E) 16

Çözüm



ABE dik üçgeninde,

$|AE| = 6$ br ve

$|AB| = 12$ br

$|AE| = \frac{|AB|}{2}$ oldu-

ğundan,

$m(\widehat{ABE}) = 30^\circ$ olur.

O halde, $m(\widehat{BAE}) = 60^\circ$ olur.

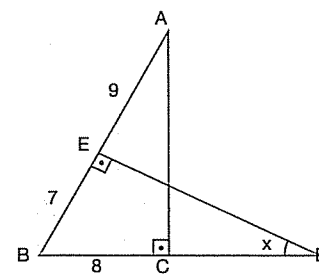
ADC üçgeninde, $m(\widehat{DAC}) = 60^\circ \Rightarrow m(\widehat{ACD}) = 30^\circ$ olur. ADC üçgeni $(30 - 60 - 90)$

$|AC| = 2 \cdot |AD| \Rightarrow 6 + x = 2 \cdot 7 \Rightarrow x = 8$ br olur.

Cevap A

TEST - 11

1.



ABC dik üçgen

$[AC] \perp [BD]$

$[DE] \perp [AB]$

$|AE| = 9$ br

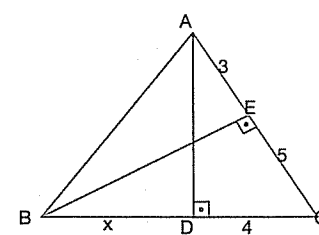
$|EB| = 7$ br

$|BC| = 8$ br

olduğuna göre, $m(\widehat{BDE}) = x$ kaç derecedir?

- A) 15 B) 30 C) 45 D) 60 E) 75

2.



ABC dik üçgen

$[BE] \perp [AC]$

$[AD] \perp [BC]$

$|AE| = 3$ br

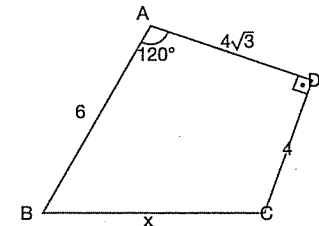
$|EC| = 5$ br

$|DC| = 4$ br

Yukarıdaki verilene göre, $|BD| = x$ kaç br dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

3.



ABCD bir

dörtgen

$[CD] \perp [AD]$

$m(\widehat{BAD}) = 120^\circ$

$|AB| = 6$ br

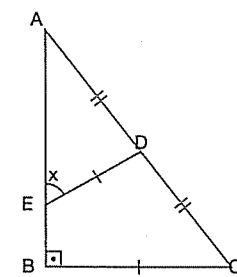
$|AD| = 4\sqrt{3}$ br

$|DC| = 4$ br

Yukarıdaki verilene göre, $|BC| = x$ kaç br dir?

- A) 14 B) 12 C) 10 D) 8 E) 6

4.



ABC dik üçgen

$[AB] \perp [BC]$

$|AD| = |DC|$

$|ED| = |BC|$

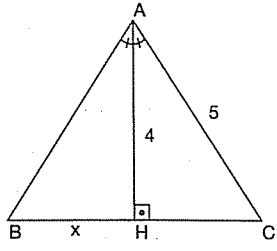
olduğuna göre, $m(\widehat{AED}) = x$ kaç derecedir?

- A) 15 B) 30 C) 45 D) 60 E) 75

1. B 2. C 3. C 4. B

İkizkenar Üçgen - I

Örnek

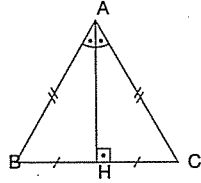


ABC bir üçgen
[AH] açıortay
[AH] $\perp$ [BC]
|AC| = 5 cm
|AH| = 4 cm

Yukarıdaki verilere göre, |BH| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

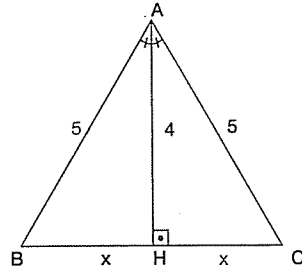
İkizkenar üçgende tabana indirilen dikme hem açıortay, hem de kenarortaydır.



|AB| = |AC|
|BH| = |HC|
 $m(\widehat{BAH}) = m(\widehat{HAC})$
[AH] $\perp$ [BC]

Bu dördünden ikisi varsa diğer ikisi de geçerlidir.
(afacan dördlü ☺)

Çözüm



[AH] yükseklik ve açıortay olduğundan dolayı,
|AB| = |AC| ve
|BH| = |HC| dir.
(Afacan dördlü ☺)

Buna göre, |AB| = 5 cm

ABH dik üçgeninde,

$$|AB|^2 = |BH|^2 + |AH|^2 \text{ (Pisagor)}$$

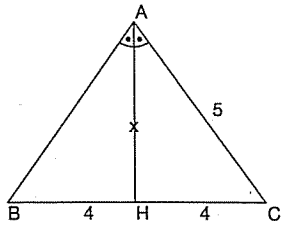
$$5^2 = x^2 + 4^2 \Rightarrow x^2 = 9$$

$$\Rightarrow x = 3 \text{ cm olur.}$$

Cevap C

TEST - 1

1.

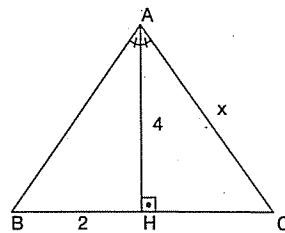


ABC bir üçgen
[AH] açıortay
|BH| = |HC| = 4 cm
|AC| = 5 cm

Yukarıdaki verilere göre, |AH| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 4

2.

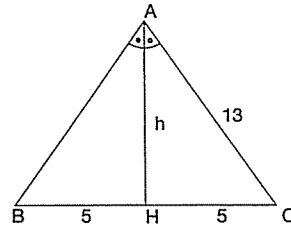


ABC bir üçgen
[AH] açıortay
[AH] $\perp$ [BC]
|AH| = 4 cm
|BH| = 2 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $2\sqrt{5}$ B) $3\sqrt{5}$ C) $4\sqrt{5}$
D) $5\sqrt{5}$ E) $6\sqrt{5}$

3.

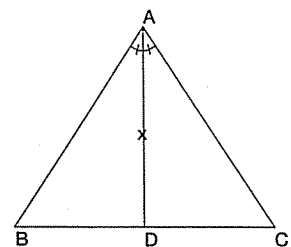


ABC bir üçgen
[AH] açıortay
|BH| = |HC| = 5 cm
|AC| = 13 cm

Yukarıdaki verilere göre, |AH| = h kaç cm dir?

- A) 5 B) 7 C) 9 D) 11 E) 12

4.



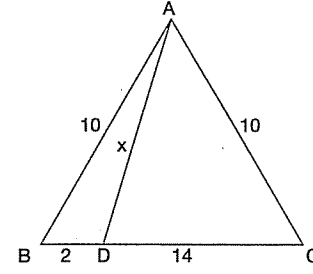
ABC bir üçgen
[AD] açıortay
|AB| = |AC| = 25 cm
|BD| = |DC| = 7 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 15 B) 17 C) 20 D) 24 E) 25

İkizkenar Üçgen - II

Örnek

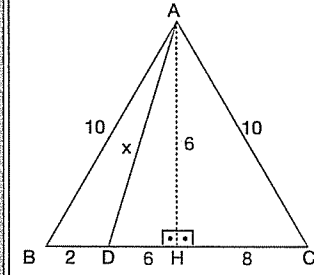


ABC bir ikizkenar üçgen
|AB| = 10 cm
|AC| = 10 cm
|BD| = 2 cm
|DC| = 14 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) $4\sqrt{3}$
D) $5\sqrt{3}$ E) $6\sqrt{2}$

Çözüm



[AH] $\perp$ [BC] çizersek
ABC ikizkenar üçgen olduğundan,
|BH| = |HC| olur.

$$\text{Buna göre, } |BH| = |HC| = \frac{|BC|}{2} = \frac{16}{2} = 8 \text{ cm}$$

$$|HC| = 8 \text{ cm, } |DH| = 6 \text{ cm}$$

AHC dik üçgeninde (6 - 8 - 10)

$$|AH| = 6 \text{ olur.}$$

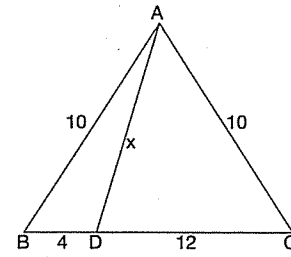
AHD dik üçgeninde,

$$x^2 = 6^2 + 6^2 \Rightarrow x^2 = 72 \Rightarrow x = 6\sqrt{2} \text{ cm olur.}$$

Cevap E

TEST - 2

1.

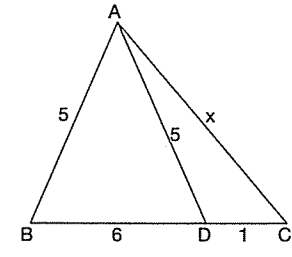


ABC bir ikizkenar üçgen
|DC| = 12 cm
|AB| = 10 cm
|AC| = 10 cm
|BD| = 4 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $\sqrt{15}$ B) $2\sqrt{13}$ C) $3\sqrt{11}$
D) $6\sqrt{5}$ E) $7\sqrt{5}$

3.

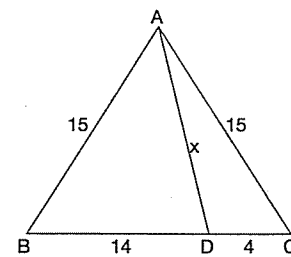


ABC bir üçgen
|BD| = 6 cm
|AB| = 5 cm
|AD| = 5 cm
|DC| = 1 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) 3 B) $3\sqrt{2}$ C) 4 D) $4\sqrt{2}$ E) 5

2.

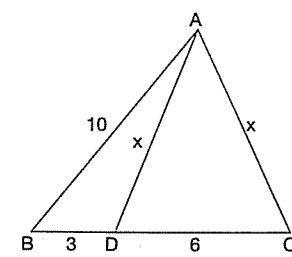


ABC bir ikizkenar üçgen
|AB| = 15 cm
|AC| = 15 cm
|BD| = 14 cm
|DC| = 4 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 14 B) 13 C) 12 D) 11 E) 10

4.



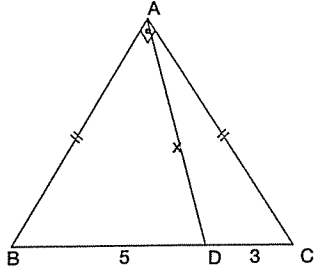
ABC bir üçgen
|AB| = 10 cm
|DC| = 6 cm
|BD| = 3 cm
|AD| = |DC| = x

Yukarıdaki verilere göre, x kaç cm dir?

- A) $\sqrt{59}$ B) $\sqrt{61}$ C) $\sqrt{62}$ D) $\sqrt{71}$ E) $\sqrt{73}$

İkizkenar Üçgen - III

Örnek

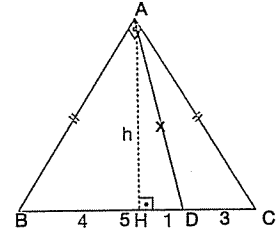


ABC bir dik
üçgen
[AB] ⊥ [AC]
|AB| = |AC|
|BD| = 5 cm
|DC| = 3 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 3 B) $12\sqrt{3}$ C) 4
D) $\sqrt{17}$ E) $2\sqrt{3}$

Çözüm



[AH] ⊥ [BC] çizerek
ABC ikizkenar üçgen
olduğundan,
 $|BH| = |HC| = \frac{|BC|}{2} = \frac{8}{2}$
olur.

Burada |HD| = 1 olur.

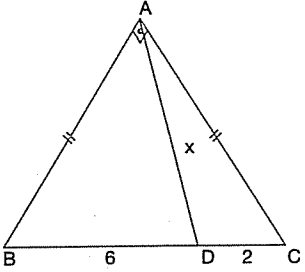
ABC dik üçgeninde, $h^2 = |BH| \cdot |HC|$ (Öklid)
 $h^2 = 4 \cdot 4$, $h = 4$ olur.

AHD dik üçgeninde, $x^2 = h^2 + |HD|^2$ (Pisagor)
 $x^2 = 4^2 + 1^2$, $x^2 = 17$, $x = \sqrt{17}$ cm olur.

Cevap D

TEST - 3

1.

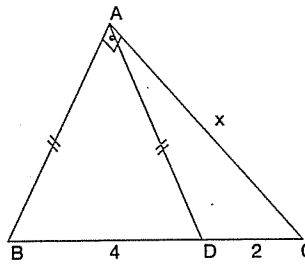


ABC dik üçgen
[AB] ⊥ [AC]
|AB| = |AC|
|BD| = 6 cm
|DC| = 2 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $\sqrt{2}$ B) $2\sqrt{5}$ C) $3\sqrt{5}$
D) $4\sqrt{5}$ E) $5\sqrt{5}$

2.

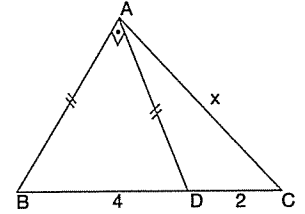


ABC dik üçgen
[AB] ⊥ [AC]
|AB| = |AD|
|BD| = 4 cm
|DC| = 2 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $2\sqrt{6}$ B) $3\sqrt{6}$ C) $4\sqrt{6}$
D) $5\sqrt{6}$ E) $6\sqrt{10}$

3.

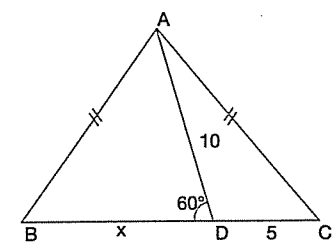


ABC bir üçgen
[AB] ⊥ [AD]
|AB| = |AD|
|BD| = 4 cm
|DC| = 2 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $5\sqrt{5}$ B) $4\sqrt{5}$ C) $3\sqrt{5}$
D) $2\sqrt{5}$ E) $\sqrt{5}$

4.



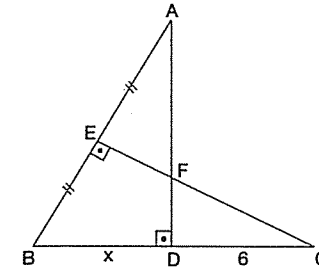
ABC bir
ikizkenar üçgen
 $m(\widehat{ADB}) = 60^\circ$
|AB| = |AC|
|AD| = 10 cm
|DC| = 5 cm

Yukarıdaki verilere göre, |BD| = x kaç cm dir?

- A) 10 B) 12 C) 13 D) 14 E) 15

İkizkenar Üçgen - IV

Örnek

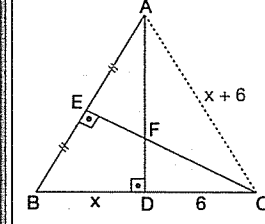


ABD ve BEC
bir dik üçgen
[AD] ⊥ [BC]
[EC] ⊥ [AB]
|AE| = |EB|
|AD| = 8 cm
|DC| = 6 cm

Yukarıdaki verilere göre, |BD| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



A ile C yi birleştirelim
ABC üçgeni elde ederiz.
[EC] ⊥ [AB]
ve |EB| = |AE| } olduğundan
|AC| = |BC| olur.
|BC| = x + 6 ise
|AC| = x + 6 olur.

ADC dik üçgeninde, $|AC|^2 = |AD|^2 + |DC|^2$ (Pisagor)

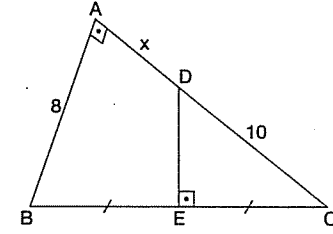
$$\Rightarrow (x+6)^2 = 8^2 + 6^2 \quad (6-8-10)$$

$$\Rightarrow x+6 = 10 \Rightarrow x = 4 \text{ olur.}$$

Cevap D

TEST - 4

1.

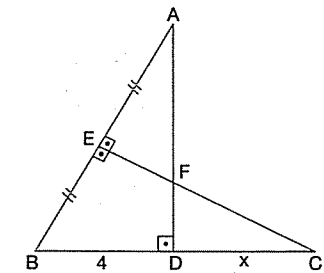


ABC dik üçgen
[AB] ⊥ [AC]
[DE] ⊥ [BC]
|BE| = |EC|
|DC| = 10 cm
|AB| = 8 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.

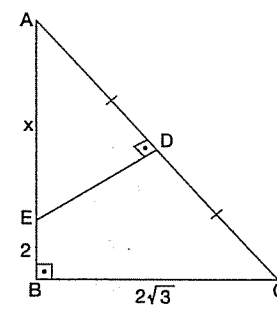


ABD ve BEC
birer dik üçgen
[AD] ⊥ [BC]
[EC] ⊥ [BA]
|AD| = 8 cm
|BD| = 4 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) 10 B) 9 C) 8 D) 7 E) 6

2.

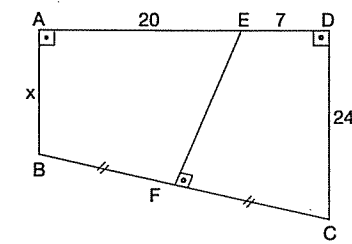


ABC dik üçgen
[AB] ⊥ [BC]
[ED] ⊥ [AC]
|AD| = |DC|
|BC| = $2\sqrt{3}$ cm
|EB| = 2 cm

Yukarıdaki verilere göre, |AE| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

4.



ABCD bir
dörtgen
[AB] ⊥ [AD]
[AD] ⊥ [DC]
[EF] ⊥ [BC]
|BF| = |FC|

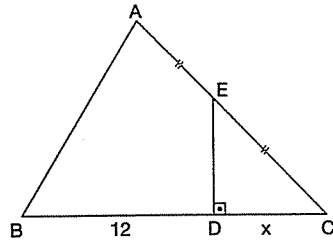
|DC| = 24 cm, |AE| = 20 cm, |ED| = 7 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 10 B) 12 C) 13 D) 15 E) 17

İkizkenar Üçgen - V

Örnek



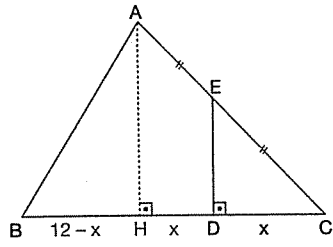
ABC ikizkenar
üçgen
 $|AB| = |AC|$
 $|AE| = |EC|$
 $[ED] \perp [BC]$
 $|BD| = 12$ cm

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7



Çözüm



$[AH] \perp [BC]$ çizelim.
AHC üçgeninde
 $|EC| = |EA|$ ve
 $[ED] \parallel [AH]$ oldu-
ğundan
 $|DC| = |HD| = x$ ve
 $|BH| = 12 - x$ olur.

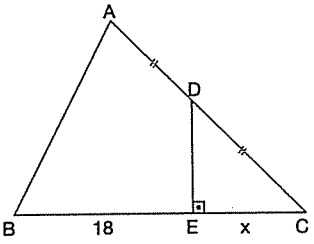
$|AB| = |AC|$ ve $[AH] \perp [BC]$ olduğundan,
 $|BH| = |HC|$ olur.

Buna göre, $12 - x = 2x \Rightarrow 3x = 12 \Rightarrow x = 4$ olur.

Cevap B

TEST - 5

1.

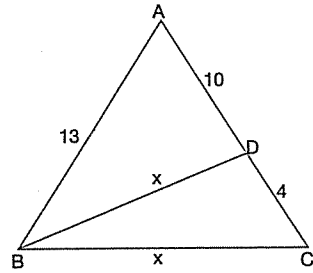


ABC bir
ikizkenar üçgen
 $[DE] \perp [BC]$
 $|AB| = |AC|$
 $|AD| = |DC|$
 $|BE| = 18$ cm

Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

3.

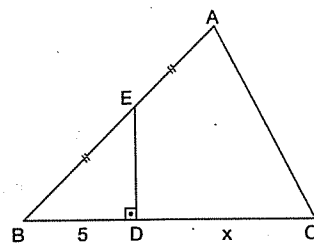


ABC bir üçgen
 $|AB| = 13$ cm
 $|AD| = 10$ cm
 $|DC| = 4$ cm
 $|BD| = |BC| = x$

Yukarıdaki verilere göre, x kaç cm dir?

- A) $\sqrt{29}$ B) $\sqrt{31}$ C) $\sqrt{33}$ D) $\sqrt{35}$ E) $\sqrt{41}$

2.

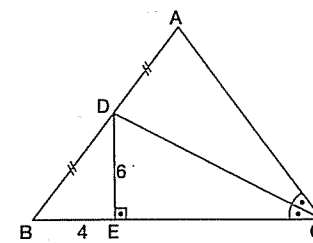


ABC bir
ikizkenar üçgen
 $[ED] \perp [BC]$
 $|AB| = |AC|$
 $|AE| = |EB|$
 $|BD| = 5$ cm

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) 5 B) 8 C) 10 D) 12 E) 15

4.



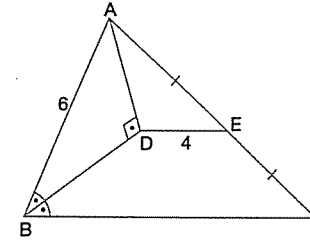
ABC bir üçgen
 $[CD]$ açıortay
 $[DE] \perp [BC]$
 $|AD| = |DB|$
 $|DE| = 6$ cm
 $|BE| = 4$ cm

Yukarıdaki verilere göre, $|AC|$ kaç cm dir?

- A) 9 B) 10 C) 11 D) 12 E) 13

İkizkenar Üçgen - VI

Örnek



ABC bir üçgen, $[AD] \perp [BD]$

$m(\widehat{ABD}) = m(\widehat{DBC})$

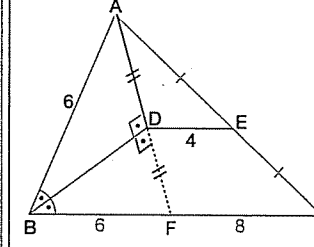
$|AE| = |EC|$, $|AB| = 6$ cm, $|DE| = 4$ cm

Yukarıdaki verilere göre, $|BC|$ kaç cm dir?

- A) 10 B) 12 C) 14 D) 16 E) 18



Çözüm



D den geçen $[AF]$ çizilirse ABF üçgeninde $[BD]$ açıortay ve yükseklik olur. Dolayısıyla, $|AD| = |DF|$ ve $|AB| = |BF| = 6$ cm olur.

$|AD| = |DF|$ ve $|AE| = |EC| \Rightarrow [DE] \parallel [FC]$ ve $[DE]$ orta taban olur.

Buna göre, $|FC| = 2|DE| \Rightarrow |FC| = 2 \cdot 4$

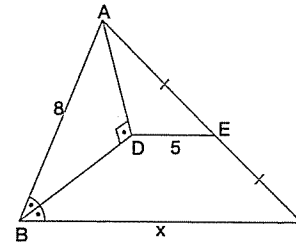
$\Rightarrow |FC| = 8$ cm olur.

$|BC| = 6 + 8 = 14$ cm olur.

Cevap C

TEST - 6

1.

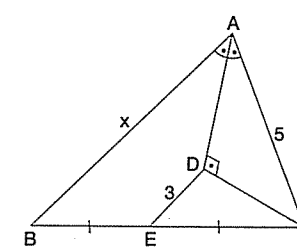


ABC bir üçgen
 $[AD] \perp [BD]$
 $m(\widehat{ABD}) = m(\widehat{DBC})$
 $|AE| = |EC|$
 $|AB| = 8$ cm
 $|DE| = 5$ cm

Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) 12 B) 14 C) 16 D) 18 E) 20

3.

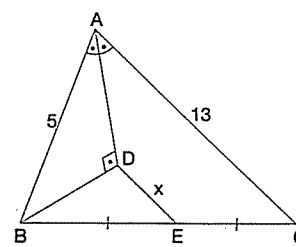


ABC bir üçgen
 $[AD] \perp [DC]$
 $m(\widehat{DAB}) = m(\widehat{DAC})$
 $|BE| = |EC|$
 $|AC| = 5$ cm
 $|DE| = 3$ cm

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 10 B) 11 C) 12 D) 13 E) 14

2.

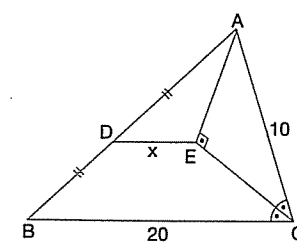


ABC bir üçgen
 $[AD] \perp [BD]$
 $m(\widehat{BAD}) = m(\widehat{DAC})$
 $|BE| = |EC|$
 $|AC| = 13$ cm
 $|AB| = 5$ cm

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



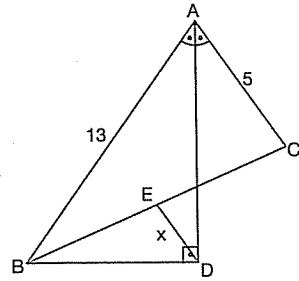
ABC bir üçgen
 $[AE] \perp [EC]$
 $m(\widehat{ACE}) = m(\widehat{BCE})$
 $|AD| = |DB|$
 $|AC| = 10$ cm
 $|BC| = 20$ cm

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) 8 B) 7 C) 6 D) 5 E) 4

İkizkenar Üçgen - VII

Örnek



ABC bir üçgen

$[AD] \perp [BD]$

$m(\widehat{BAD}) = m(\widehat{DAC})$

$|BE| = |EC|$, $|AB| = 13$ cm, $|AC| = 5$ cm

Yukarıdaki verilene göre, $|DE| = x$ kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

Çözüm

$[AC] \cap [BD] = \{F\}$

olacak şekilde

$[AC]$ ve $[BD]$ yi uzatalım.

ABF üçgeninde

$[AD]$ hem açıortay

hem de yükseklik olduğundan,

$|AB| = |AF|$ ve $|BD| = |DF|$ dir.

$|AB| = 13 \Rightarrow |AC| + |CF| = 13 \Rightarrow |CF| = 8$ cm olur.

BCF üçgeninde,

$\left. \begin{array}{l} |BE| = |EC| \\ |BD| = |DF| \end{array} \right\} \Rightarrow [DE] \text{ orta tabandır.}$

$|DE| = \frac{|CF|}{2} = \frac{8}{2} = 4$ cm olur.

Cevap B

TEST - 7

1. ABC bir üçgen

$[AD] \perp [BD]$

$m(\widehat{BAD}) = m(\widehat{DAC})$

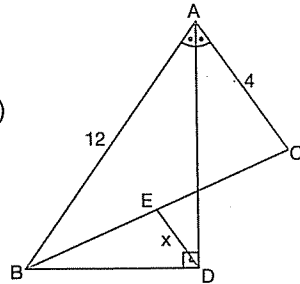
$|BE| = |EC|$

$|BA| = 12$ cm

$|AC| = 4$ cm

Yukarıdaki verilene göre, $|DE| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8



2. ABC bir üçgen

$[AD] \perp [BD]$

$m(\widehat{BAD}) = m(\widehat{DAC})$

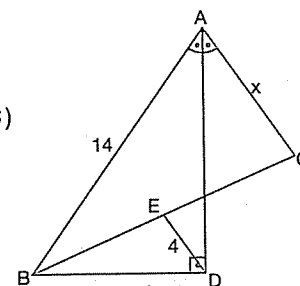
$|BE| = |EC|$

$|AB| = 14$ cm

$|ED| = 4$ cm

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12



3. ABC bir üçgen

$[AD] \perp [DC]$

$m(\widehat{ACD}) = m(\widehat{DCK})$

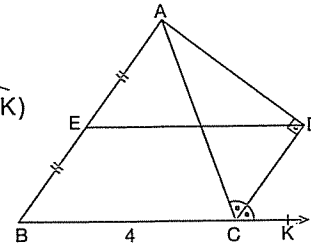
$|AE| = |EB|$

$|ED| = 6$ cm

$|BC| = 4$ cm

Yukarıdaki verilene göre, $|AC|$ kaç cm dir?

- A) 14 B) 12 C) 10 D) 8 E) 6



4. ABC bir üçgen

$[AD] \perp [CD]$

$m(\widehat{ACD}) = m(\widehat{DCK})$

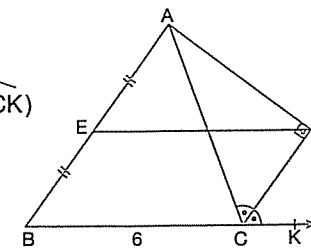
$|AE| = |EB|$

$|AC| = 8$ cm

$|BC| = 6$ cm

Yukarıdaki verilene göre, $|ED|$ kaç cm dir?

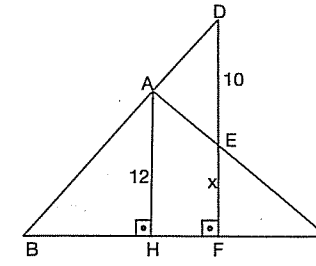
- A) 5 B) 7 C) 9 D) 11 E) 13



1. A 2. B 3. D 4. B

İkizkenar Üçgen - VIII

Örnek



ABC bir ikizkenar üçgen

$|AB| = |AC|$

BDF bir dik üçgen

$[AH] \perp [BC]$

$[DF] \perp [BC]$

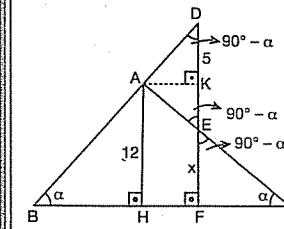
$|DE| = 10$ cm

$|AH| = 12$ cm

Yukarıdaki verilene göre, $|FE| = x$ kaç cm dir?

- A) 7 B) 8 C) 9 D) 10 E) 11

Çözüm



$|AB| = |AC|$

$m(\widehat{ABC}) = m(\widehat{ACB}) = \alpha$ diyelim.

FEC üçgeninde,

$m(\widehat{FEC}) = 90^\circ - \alpha$ olur.

BDF üçgeninde, $m(\widehat{BDF}) = 90^\circ - \alpha$ olur.

$m(\widehat{AED}) = m(\widehat{FEC}) = 90^\circ - \alpha$ (Ters açı)

Bu durumda AED ikizkenar üçgen olur.

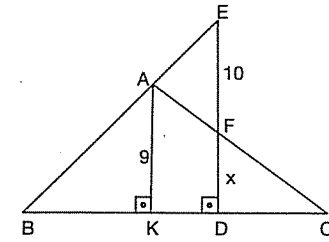
$[AK] \perp [DF]$ çizersek $|DK| = |KE| = \frac{10}{2} = 5$ cm olur.

$|AH| = |KF| = 12 \Rightarrow 5 + x = 12 \Rightarrow x = 7$ cm olur.

Cevap A

TEST - 8

- 1.



ABC bir ikizkenar üçgen

$|AB| = |AC|$

BED dik üçgen

$[AK] \perp [BC]$

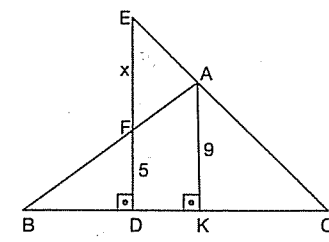
$[ED] \perp [BC]$

$|EF| = 10$ cm, $|AK| = 9$ cm

Yukarıdaki verilene göre, $|FD| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

- 2.



ABC bir ikizkenar üçgen

$|AB| = |AC|$

DEC dik üçgen

$[AK] \perp [BC]$

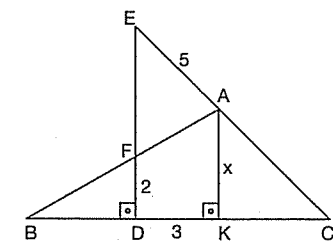
$[ED] \perp [BC]$

$|AK| = 9$ cm, $|FD| = 5$ cm

Yukarıdaki verilene göre, $|EF| = x$ kaç cm dir?

- A) 14 B) 12 C) 10 D) 8 E) 6

- 3.



ABC bir ikizkenar üçgen

$|AB| = |AC|$

DEC dik üçgen

$[AK] \perp [BC]$

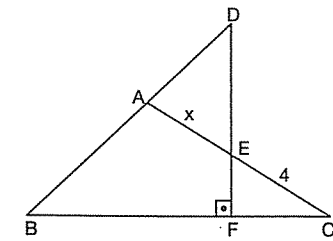
$[ED] \perp [BC]$

$|AE| = 5$ cm, $|FD| = 2$ cm, $|DK| = 3$ cm

Yukarıdaki verilene göre, $|AK| = x$ kaç cm dir?

- A) 10 B) 9 C) 8 D) 7 E) 6

- 4.



ABC bir ikizkenar üçgen

$|AB| = |AC|$

$[DF] \perp [BC]$

$|EC| = 4$ cm

$|BD| = 16$ cm

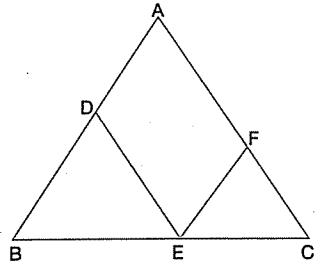
Yukarıdaki verilene göre, $|AE| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

1. A 2. D 3. E 4. B

İkizkenar Üçgen - IX

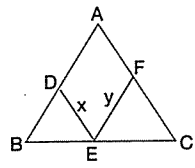
Örnek



ABC üçgeninde
 $|AB| = |AC|$
 $[DE] \parallel [AC]$
 $[EF] \parallel [AB]$
 $\widehat{BDE} = 20 \text{ cm}$
 $\widehat{EFC} = 12 \text{ cm}$

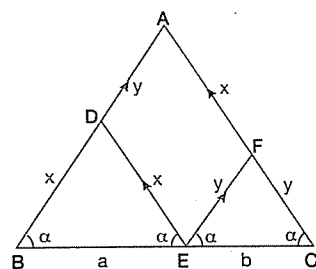
Yukarıdaki verilene göre, $\widehat{ABC}$ kaç cm dir?

- A) 20 B) 24 C) 28 D) 30 E) 32



ABC üçgeninde,
 $|AB| = |AC|$
 $[EF] \parallel [AB]$
 $[DE] \parallel [AC]$
 ise,
 $|AB| = |AC| = x + y$

Çözüm



$|AB| = |AC|$
 $\Rightarrow m(\widehat{B}) = m(\widehat{C}) = \alpha$
 $|BD| = x$ alırsak
 $|BD| = |DE| = |AF| = x$
 $|FC| = y$ alırsak
 $|FC| = |EF| = |AD| = y$ olur.

$$\widehat{BDE} = 20 \text{ cm} \Rightarrow 2x + a = 20$$

$$\widehat{EFC} = 12 \text{ cm} \Rightarrow 2y + b = 12$$

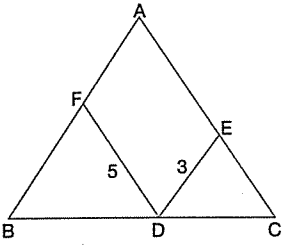
$$2x + 2y + a + b = 32$$

$$\widehat{ABC} = 2x + 2y + a + b = 32 \text{ cm olur.}$$

Cevap E

TEST - 9

1.

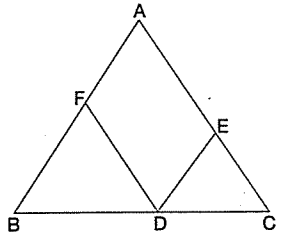


ABC bir üçgen
 $|AB| = |AC|$
 $[FD] \parallel [AC]$
 $[DE] \parallel [AB]$
 $|FD| = 5 \text{ cm}$
 $|DE| = 3 \text{ cm}$

Yukarıdaki verilene göre, $|AB|$ kaç cm dir?

- A) 8 B) 9 C) 10 D) 11 E) 12

2.

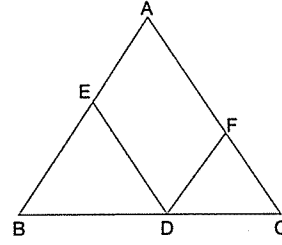


ABC bir üçgen
 $|AB| = |AC| = 16 \text{ cm}$
 $[FD] \parallel [AC]$
 $[DE] \parallel [AB]$

Yukarıdaki verilene göre, $|FD| + |DE|$ kaç cm dir?

- A) 8 B) 12 C) 14 D) 16 E) 20

3.

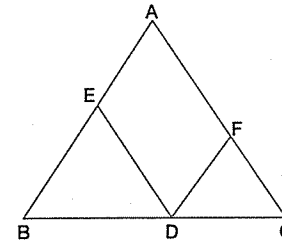


ABC bir üçgen
 $|AB| = |AC|$
 $[ED] \parallel [AC]$
 $[DF] \parallel [AB]$
 $\widehat{EBD} = 12 \text{ br}$
 $\widehat{DFC} = 9 \text{ br}$

Yukarıdaki verilene göre, $\widehat{ABC}$ kaç br dir?

- A) 15 B) 16 C) 17 D) 19 E) 21

4.



ABC bir üçgen
 $|AB| = |AC|$
 $[DE] \parallel [AC]$
 $[FD] \parallel [AB]$
 $\widehat{ABC} = 20 \text{ br}$
 $\widehat{DFC} = 8 \text{ br}$

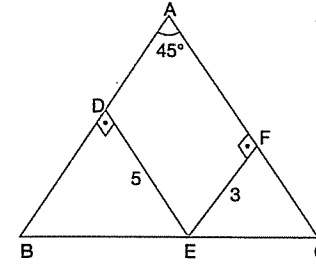
Yukarıdaki verilene göre, $\widehat{EBD}$ kaç br dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

1. A 2. D 3. E 4. B

İkizkenar Üçgen - X

Örnek

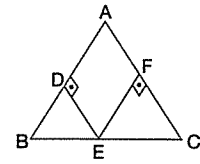


ABC bir
 ikizkenar üçgen
 $|AB| = |AC|$
 $m(\widehat{BAC}) = 45^\circ$
 $[DE] \perp [AB]$
 $[FE] \perp [AC]$

$$|DE| = 5 \text{ cm}, |FE| = 3 \text{ cm}$$

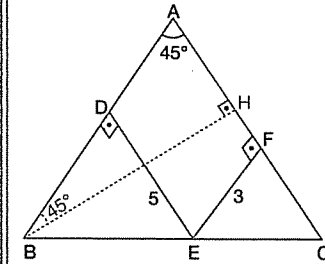
Yukarıdaki verilene göre, $|AB|$ kaç cm dir?

- A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) 8 D) $6\sqrt{2}$ E) $8\sqrt{2}$



ABC üçgeninde,
 $|AB| = |AC|$, $[DE] \perp [AB]$,
 $[EF] \perp [AC]$ ise,
 $|DE| + |EF| = h_b = h_c$

Çözüm



$[BH] \perp [AC]$ çizelim.
 $|DE| + |EF| = h_b = h_c$
 olduğundan,
 $h_b = |BH| = 3 + 5$
 $h_b = 8 \text{ cm}$ olur.

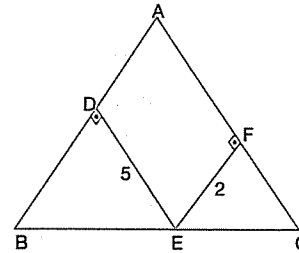
ABH dik üçgeninde,

$$|AB| = |BH| \cdot \sqrt{2} \Rightarrow |AB| = 8\sqrt{2} \text{ cm olur.}$$

Cevap E

TEST - 10

1.

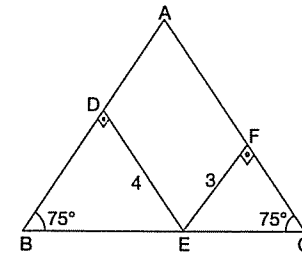


ABC bir
 ikizkenar üçgen
 $|AB| = |AC|$
 $[DE] \perp [AB]$
 $[EF] \perp [AC]$
 $|DE| = 5 \text{ cm}$
 $|EF| = 2 \text{ cm}$

Yukarıdaki verilene göre, h_b kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

3.

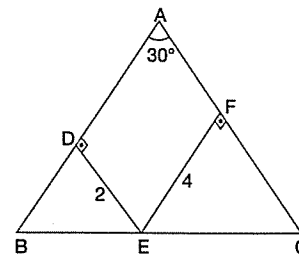


ABC bir üçgen
 $m(\widehat{C}) = m(\widehat{B}) = 75^\circ$
 $[DE] \perp [AB]$
 $[EF] \perp [AC]$
 $|DE| = 4 \text{ cm}$
 $|EF| = 3 \text{ cm}$

Yukarıdaki verilene göre, $|AB|$ kaç cm dir?

- A) 11 B) 12 C) 13 D) 14 E) 15

2.



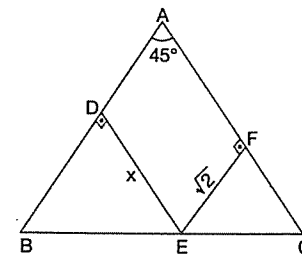
ABC bir
 ikizkenar üçgen
 $|AB| = |AC|$
 $[DE] \perp [AB]$
 $[EF] \perp [AC]$
 $m(\widehat{BAC}) = 30^\circ$

$$|DE| = 2 \text{ cm}, |EF| = 4 \text{ cm}$$

Yukarıdaki verilene göre, $|AB|$ kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

4.



ABC bir ikizkenar
 üçgen
 $|AB| = |AC|$
 $[DE] \perp [AB]$
 $[EF] \perp [AC]$
 $m(\widehat{BAC}) = 45^\circ$

$$|EF| = \sqrt{2} \text{ cm}, |AB| = 6 \text{ cm}$$

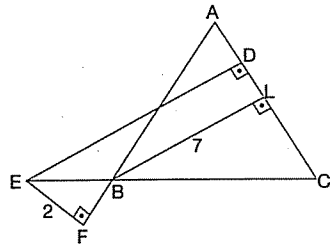
Yukarıdaki verilene göre, $|DE| = x$ kaç cm dir?

- A) $\sqrt{2}$ B) $2\sqrt{2}$ C) $3\sqrt{2}$ D) $4\sqrt{2}$ E) $5\sqrt{2}$

1. C 2. D 3. D 4. B

İkizkenar Üçgen - XI

Örnek

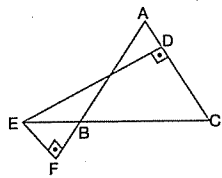


ABC bir
ikizkenar üçgen
[AB] = [AC]
[ED] ⊥ [AC]
[EF] ⊥ [AF]
[BL] ⊥ [AC]

|BL| = 7 br, |EF| = 2 br

Yukarıdaki verilene göre, |ED| kaç br dir?

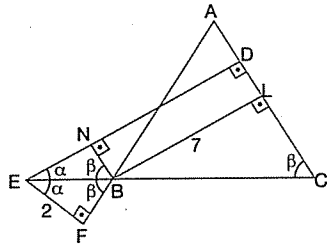
A) 13 B) 12 C) 11 D) 10 E) 9



ABC üçgeninde, |AB| = |AC|
[ED] ⊥ [AC]
[EF] ⊥ [AB] ise,
|ED| - |EF| = h_b = h_c



Çözüm



$m(\widehat{BCA}) = m(\widehat{NBE}) = \beta$
(Yöndeş açılar)
 $m(\widehat{EBF}) = m(\widehat{ABC}) = \beta$
(Ters açılar)
olacağından,

EFB üçgeni ile EBN üçgenleri eş üçgenler olur.

Dolayısıyla |EN| = |EF| dir.

Ayrıca |ND| = |BL| olduğundan,

|ED| = |EN| + |ND|

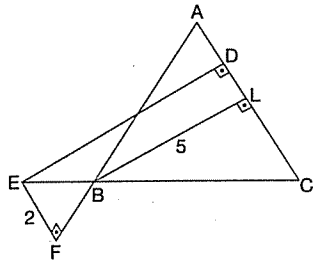
|ED| = |EF| + |BL|

|ED| = 2 + 7 = 9 br

Cevap E

TEST - 11

1.

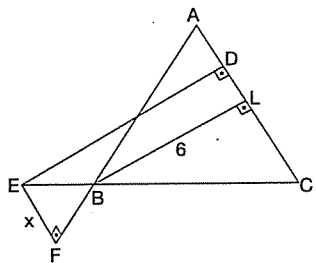


ABC ikizkenar
üçgen
|AB| = |AC|
[ED] ⊥ [AC]
[EF] ⊥ [AF]
[BL] ⊥ [AC]
|BL| = 5 br
|EF| = 2 br

Yukarıdaki verilene göre, |ED| = x kaç br dir?

A) 7 B) 8 C) 9 D) 10 E) 11

2.

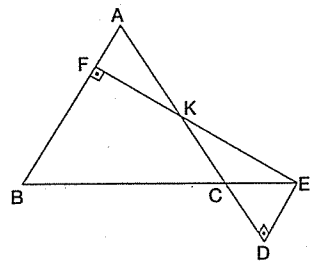


ABC ikizkenar
üçgen
|AB| = |AC|
[ED] ⊥ [AC]
[EF] ⊥ [AF]
[BL] ⊥ [AC]
|BL| = 6 br
|ED| = 8 br

Yukarıdaki verilene göre, |EF| = x kaç br dir?

A) 5 B) 4 C) 3 D) 2 E) 1

3.

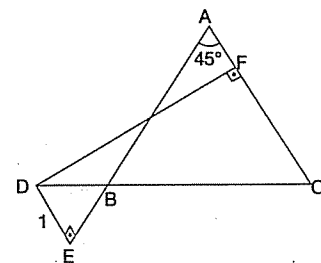


ABC ikizkenar
üçgen
[EF] ⊥ [AB]
[ED] ⊥ [AD]
|AB| = |AC|
|KE| = |DE| + 2 br
|FK| = 3 br

Yukarıdaki verilene göre, B noktasının [AD] ye olan uzaklığı kaç br dir?

A) 4 B) 5 C) 6 D) 7 E) 8

4.



ABC ikizkenar
üçgen
|AB| = |AC|
[DF] ⊥ [AC]
[DE] ⊥ [AE]
 $m(\widehat{BAC}) = 45^\circ$
|DF| = 5 cm
|DE| = 1 cm

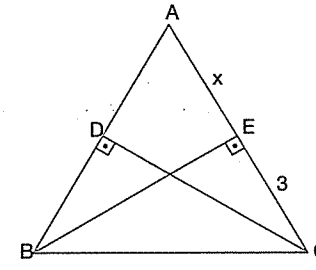
Yukarıdaki verilene göre, |AC| kaç br dir?

A) $5\sqrt{2}$ B) $4\sqrt{2}$ C) $3\sqrt{2}$ D) $2\sqrt{2}$ E) $\sqrt{2}$

1. A 2. D 3. B 4. B

İkizkenar Üçgen - XII

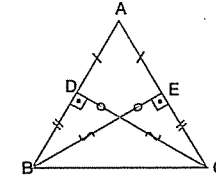
Örnek



ABC bir üçgen
[DC] ⊥ [AB]
[BE] ⊥ [AC]
|BE| = |DC|
|AB| = 12 cm

Yukarıdaki verilene göre, |AE| = x kaç cm dir?

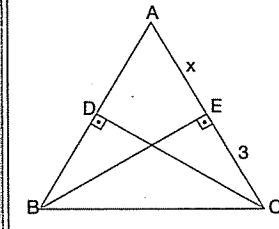
A) 7 B) 8 C) 9 D) 10 E) 11



İkizkenar üçgende eşit
kenarlara ait yükseklikler
eşittir.



Çözüm



|BE| = |DC| ⇒ |AB| = |AC|
h_b = h_c
[BE], [AC] kenarına ait
yükseklik
[DC], [AB] kenarına ait
yükseklik

|BE| = |DC| olduğundan, |AB| = |AC| olmalı.

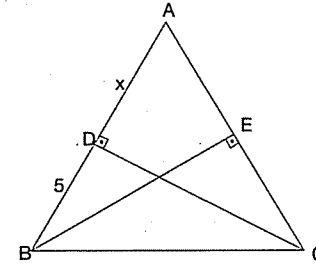
Buna göre, |AB| = 12 ⇒ x + 3 = 12

⇒ x = 9 cm olur.

Cevap C

TEST - 12

1.

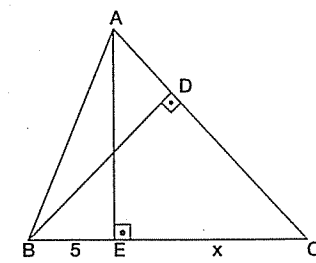


ABC bir üçgen
[DC] ⊥ [AB]
[BE] ⊥ [AC]
|BE| = |DC|
|AC| = 12 cm
|DB| = 5 cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

A) 6 B) 7 C) 8 D) 9 E) 10

2.

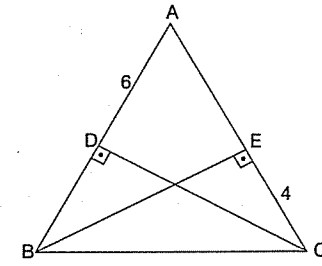


ABC bir üçgen
[BD] ⊥ [AC]
[AE] ⊥ [BC]
|BD| = |AE|
|AC| = 13 cm
|BE| = 5 cm

Yukarıdaki verilene göre, |EC| = x kaç br dir?

A) 6 B) 7 C) 8 D) 9 E) 10

3.

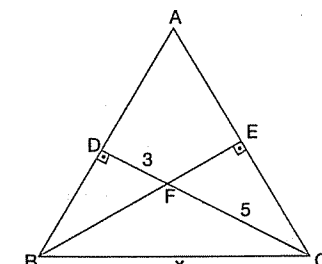


ABC ikizkenar
üçgen
|AB| = |AC|
[DC] ⊥ [AB]
[BE] ⊥ [AC]
|AD| = 6 cm
|EC| = 4 cm

Yukarıdaki verilene göre, |BC| = x kaç cm dir?

A) $2\sqrt{5}$ B) $3\sqrt{5}$ C) $4\sqrt{5}$ D) $5\sqrt{5}$ E) $6\sqrt{5}$

4.



ABC bir
ikizkenar üçgen
|AB| = |AC|
[DC] ⊥ [AB]
[BE] ⊥ [AC]
|FC| = 5 cm
|DF| = 3 cm

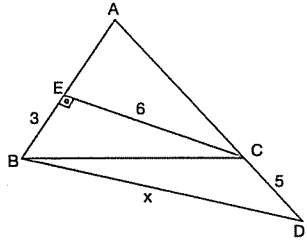
Yukarıdaki verilene göre, |BC| kaç cm dir?

A) $5\sqrt{5}$ B) $4\sqrt{5}$ C) $3\sqrt{5}$ D) $2\sqrt{5}$ E) $\sqrt{5}$

1. B 2. C 3. C 4. B

İkizkenar Üçgen - XIII

Örnek



ABC bir ikizkenar üçgen
A, C, D doğrusal
 $|AB| = |AC|$
 $|EC| \perp [AB]$
 $|EC| = 6 \text{ cm}$

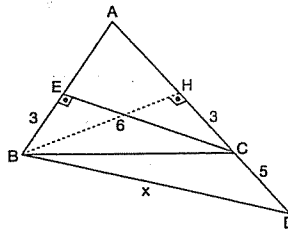
$|CD| = 5 \text{ cm}$, $|BE| = 3 \text{ cm}$

Yukarıdaki verilere göre, $|BD| = x$ kaç cm'dir?

- A) 7 B) 8 C) 9 D) 10 E) 12



Çözüm



$[BH] \perp [AD]$ çizelim.
 $|AB| = |AC|$ olduğundan,
 $|EC| = |BH| = 6 \text{ cm}$
 $|BE| = |HC| = 3 \text{ cm}$ olur.

BHD dik üçgeninde,

$|BH| = 6 \text{ cm}$ ve $|HD| = 8 \text{ cm}$ dir.

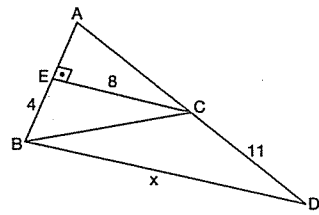
$|BD|^2 = |BH|^2 + |HD|^2$ (Pisagor)

$x^2 = 6^2 + 8^2 \Rightarrow x = 10 \text{ cm}$ olur. (6 - 8 - 10)

Cevap D

TEST - 13

1.



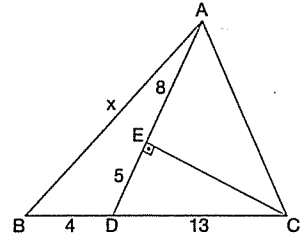
ABC bir ikizkenar üçgen
A, C, D doğrusal
 $|AB| = |AC|$
 $[EC] \perp [AB]$
 $|CD| = 11 \text{ cm}$

$|EC| = 8 \text{ cm}$, $|BE| = 4 \text{ cm}$

Yukarıdaki verilere göre, $|BD| = x$ kaç br dir?

- A) 10 B) 13 C) 15 D) 17 E) 20

3.

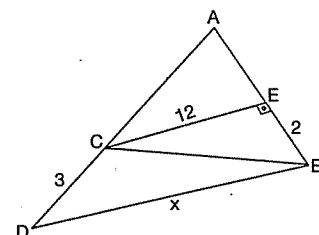


ABC bir üçgen
 $[CE] \perp [AD]$
 $|DC| = 13 \text{ cm}$
 $|AE| = 8 \text{ cm}$
 $|DE| = 5 \text{ cm}$
 $|BD| = 4 \text{ cm}$

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 10 B) 13 C) 14 D) 15 E) 17

2.



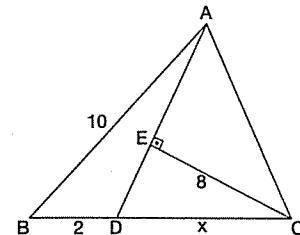
ABC ikizkenar üçgen
A, C, D doğrusal
 $|AB| = |AC|$
 $[CE] \perp [AB]$
 $|CE| = 12 \text{ cm}$

$|CD| = 3 \text{ cm}$, $|EB| = 2 \text{ cm}$

Yukarıdaki verilere göre, $|DB| = x$ kaç cm dir?

- A) 8 B) 10 C) 13 D) 15 E) 17

4.



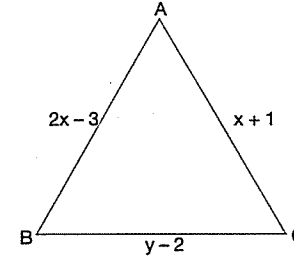
ABC bir üçgen
 $[CE] \perp [AD]$
 $|AD| = |DC| = x$
 $|AB| = 10 \text{ cm}$
 $|EC| = 8 \text{ cm}$
 $|BD| = 2 \text{ cm}$

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) $4\sqrt{2}$ B) $4\sqrt{3}$ C) $4\sqrt{5}$ D) $5\sqrt{3}$ E) $5\sqrt{5}$

Eşkenar Üçgen - I

Örnek



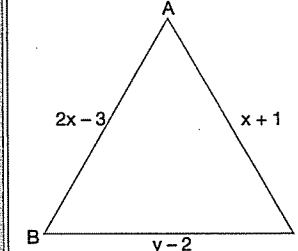
ABC eşkenar üçgen
 $|AB| = 2x - 3$
 $|AC| = x + 1$
 $|BC| = y - 2$

Yukarıdaki verilere göre, $x + y$ kaç br dir?

- A) 7 B) 8 C) 9 D) 10 E) 11



Çözüm



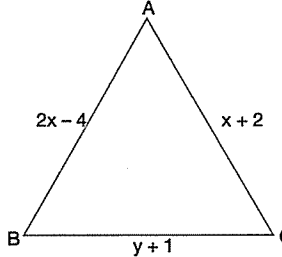
ABC eşkenar üçgen ise
 $|AB| = |AC| = |BC|$ ve
Buna göre,
 $2x - 3 = x + 1$
 $x = 4 \text{ br}$
 $y - 2 = x + 1$
 $y - 2 = 4 + 1$
 $y = 7 \text{ br}$ olur.

$x + y = 4 + 7 = 11 \text{ br}$ olur.

Cevap E

TEST - 1

1.

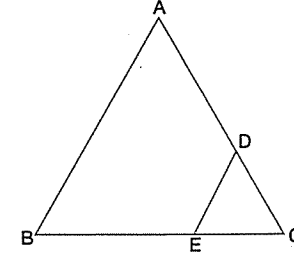


ABC eşkenar üçgen
 $|AB| = 2x - 4$
 $|AC| = x + 2$
 $|BC| = y + 1$

Yukarıdaki verilere göre, $x + y$ kaç br dir?

- A) 10 B) 11 C) 12 D) 13 E) 14

3.

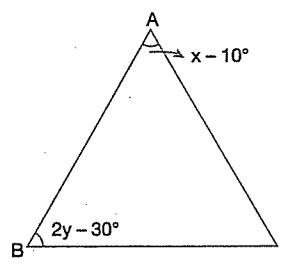


ABC bir eşkenar üçgen
 $[AB] \parallel [DE]$
 $|EC| + |AD| = 10 \text{ cm}$

Yukarıdaki verilere göre, $|AB|$ kaç cm dir?

- A) 5 B) 10 C) 15 D) 20 E) 25

2.

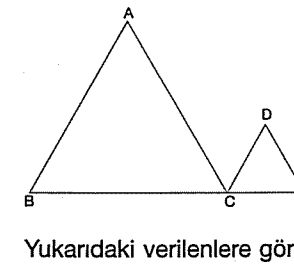


ABC eşkenar üçgen
 $m(\widehat{ABC}) = 2y - 30^\circ$
 $m(\widehat{CAB}) = x - 10^\circ$

Yukarıdaki verilere göre, $x + y$ kaç derecedir?

- A) 100 B) 105 C) 110 D) 115 E) 120

4.



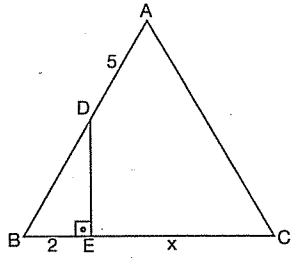
ABC ve DCE bir eşkenar üçgen
B, C, E doğrusal
 $|BE| = 12 \text{ cm}$

Yukarıdaki verilere göre, $\angle(BAC) + \angle(DCE)$ kaç cm dir?

- A) 12 B) 16 C) 24 D) 30 E) 36

Eşkenar Üçgen - II

Örnek



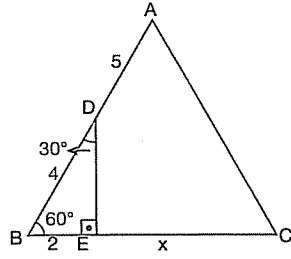
ABC eşkenar
üçgen
[DE] $\perp$ [BC]
|DA| = 5 br
|BE| = 2 br

Yukarıdaki verilere göre, |EC| = x kaç br dir?

- A) 7 B) 6 C) 5 D) 4 E) 3



Çözüm

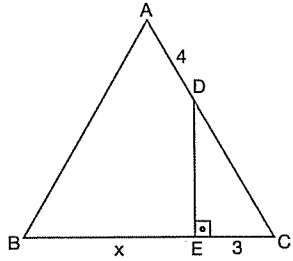


ABC eşkenar üçgen
olduğundan,
 $m(\widehat{B}) = 60^\circ$ olur.
BDE dik üçgeninde
|BE| = 2 br $\Rightarrow$ |BD| = 4
br olur. (30 - 60 - 90)
|AB| = |BC|
 $\Rightarrow 4 + 5 = 2 + x$
 $\Rightarrow x = 7$ br olur.

Cevap A

TEST - 2

1.

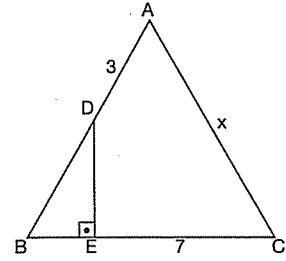


ABC bir eşkenar
üçgen
[DE] $\perp$ [BC]
|AD| = 4 br
|EC| = 3 br

Yukarıdaki verilere göre, |BE| = x kaç br dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

3.

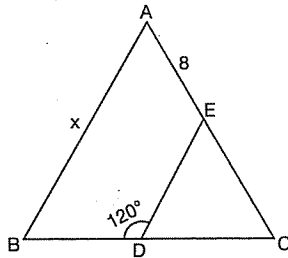


ABC bir eşkenar
üçgen
[DE] $\perp$ [BC]
|EC| = 7 br
|AD| = 3 br

Yukarıdaki verilere göre, |AC| = x kaç br dir?

- A) 11 B) 10 C) 9 D) 8 E) 7

2.

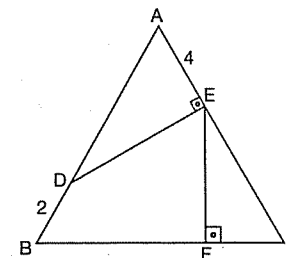


ABC bir eşkenar
üçgen
 $m(\widehat{BDE}) = 120^\circ$
[DE] = 10 br
|AE| = 8 br

Yukarıdaki verilere göre, |AB| = x kaç br dir?

- A) 8 B) 10 C) 12 D) 16 E) 18

4.



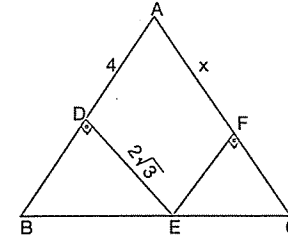
ABC bir eşkenar
üçgen
[DE] $\perp$ [AC]
[EF] $\perp$ [BC]
|AE| = 4 cm
|DB| = 2 cm

Yukarıdaki verilere göre, |BF| kaç cm dir?

- A) 13 B) 11 C) 9 D) 7 E) 5

Eşkenar Üçgen - III

Örnek



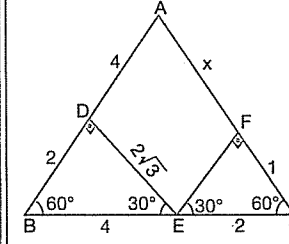
ABC eşkenar
üçgen
[DE] $\perp$ [AB]
[EF] $\perp$ [AC]
|DE| = $2\sqrt{3}$ cm
|AD| = 4 cm

Yukarıdaki verilere göre, |AF| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6



Çözüm



ABC eşkenar üçgen ise
 $m(\widehat{B}) = m(\widehat{C}) = 60^\circ$
BDE üçgeninde
|DE| = $2\sqrt{3}$

|BD| = 2 br $\Rightarrow$ |BE| = 4 br (30 - 60 - 90)

|AB| = |BC| $\Rightarrow 6 = 4 + |EC| \Rightarrow |EC| = 2$ br olur.

EFC üçgeninde,

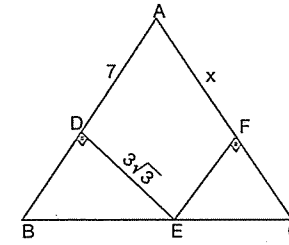
|EC| = 2 $\Rightarrow$ |FC| = 1 br (30 - 60 - 90)

|AB| = |AC| $\Rightarrow 6 = x + 1 \Rightarrow x = 5$ br olur.

Cevap D

TEST - 3

1.

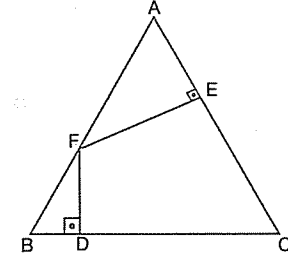


ABC eşkenar
üçgen
[DE] $\perp$ [AB]
[EF] $\perp$ [AC]
|AD| = 7 cm
|DE| = $3\sqrt{3}$ cm

Yukarıdaki verilere göre, |AF| = x kaç cm dir?

- A) 11 B) 10 C) 9 D) 8 E) 7

3.

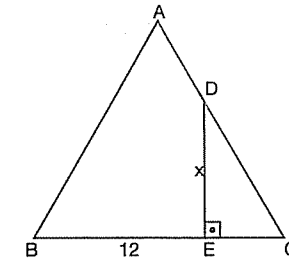


ABC bir eşkenar
üçgen
[FE] $\perp$ [AC]
[FD] $\perp$ [BC]
|EF| + |FD| = $6\sqrt{3}$ cm

Yukarıdaki verilere göre, $\angle(ABC)$ kaç cm dir?

- A) 18 B) 21 C) 24 D) 30 E) 36

2.

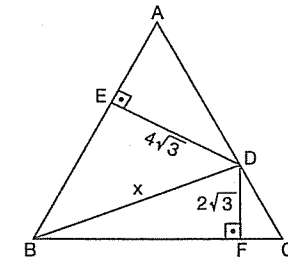


ABC bir eşkenar
üçgen
[DE] $\perp$ [BC]
 $2|AD| = |DC|$
|BE| = 12 cm

Yukarıdaki verilere göre, |DE| = x kaç cm dir?

- A) $4\sqrt{3}$ B) $5\sqrt{3}$ C) $6\sqrt{3}$ D) $7\sqrt{3}$ E) $8\sqrt{3}$

4.



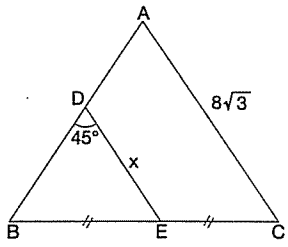
ABC bir eşkenar
üçgen
[DE] $\perp$ [AB]
[DF] $\perp$ [BC]
|DF| = $2\sqrt{3}$ cm
|ED| = $4\sqrt{3}$ cm

Yukarıdaki verilere göre, |BD| = x kaç cm dir?

- A) $3\sqrt{2}$ B) $4\sqrt{5}$ C) $4\sqrt{7}$ D) $5\sqrt{5}$ E) $5\sqrt{7}$

Eşkenar Üçgen - IV

Örnek



ABC bir eşkenar üçgen

$$m(\widehat{BDE}) = 45^\circ$$

$$|BE| = |EC|$$

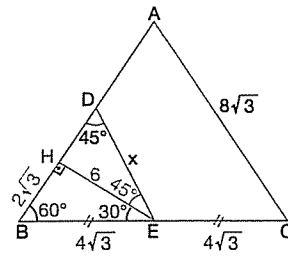
$$|AC| = 8\sqrt{3} \text{ cm}$$

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) $4\sqrt{2}$ B) $5\sqrt{2}$ C) $6\sqrt{2}$
D) $7\sqrt{2}$ E) $8\sqrt{2}$



Çözüm



ABC eşkenar üçgen

$$m(\widehat{B}) = 60^\circ \text{ ve}$$

$$|AC| = |BC| = 8\sqrt{3} \text{ cm}$$

$$|EB| = |EC| = \frac{8\sqrt{3}}{2} = 4\sqrt{3}$$

BHE üçgeninde,

$$|BE| = 4\sqrt{3} \Rightarrow |BH| = 2\sqrt{3} \text{ ve } |HE| = 6 \text{ olur.}$$

$$(30^\circ - 60^\circ - 90^\circ)$$

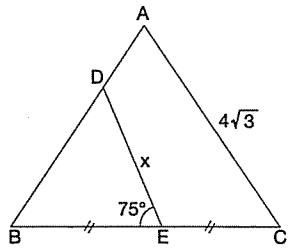
DHE üçgeninde,

$$|HE| = 6 \Rightarrow |DE| = x = 6\sqrt{2} \text{ olur. } (45^\circ - 45^\circ - 90^\circ)$$

Cevap C

TEST - 4

1.



ABC bir eşkenar üçgen

$$m(\widehat{BED}) = 75^\circ$$

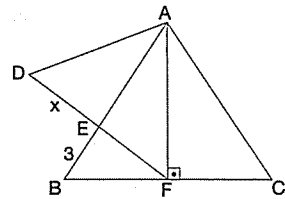
$$|BE| = |EC|$$

$$|AC| = 4\sqrt{3} \text{ cm}$$

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) $3\sqrt{2}$ B) $4\sqrt{2}$ C) $5\sqrt{2}$ D) $6\sqrt{2}$ E) $7\sqrt{2}$

3.



ABC ve DAF eşkenar üçgen

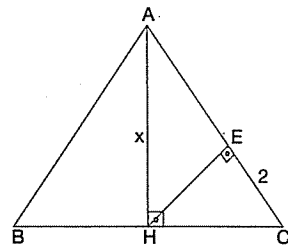
$$[AF] \perp [BC]$$

$$|BE| = 3 \text{ cm}$$

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $3\sqrt{3}$ D) $4\sqrt{3}$ E) $5\sqrt{3}$

2.



ABC bir eşkenar üçgen

$$[AH] \perp [BC]$$

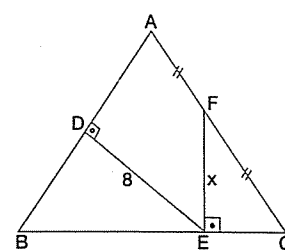
$$[HE] \perp [AC]$$

$$|EC| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|AH| = x$ kaç cm dir?

- A) $2\sqrt{3}$ B) $3\sqrt{3}$ C) $4\sqrt{3}$ D) $5\sqrt{3}$ E) $6\sqrt{3}$

4.



ABC bir eşkenar üçgen

$$[DE] \perp [AB]$$

$$[EF] \perp [BC]$$

$$|AF| = |FC|$$

$$|DE| = 8 \text{ cm}$$

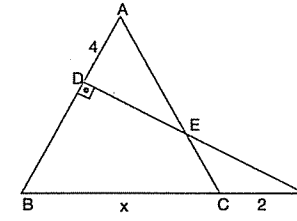
Yukarıdaki verilere göre, $|FE| = x$ kaç cm dir?

- A) $\frac{7}{3}$ B) $\frac{13}{3}$ C) $\frac{16}{3}$ D) $\frac{17}{3}$ E) $\frac{19}{3}$

1. A 2. C 3. C 4. C

Eşkenar Üçgen - V

Örnek



ABC eşkenar üçgen

B, C, F doğrusal

$$[DF] \perp [AB]$$

$$|AD| = 4 \text{ br}$$

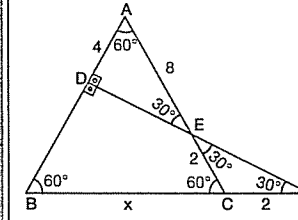
$$|CF| = 2 \text{ br}$$

Yukarıdaki verilere göre, $|BC| = x$ kaç br dir?

- A) 8 B) 10 C) 12 D) 14 E) 16



Çözüm



ABC eşkenar üçgen olduğundan,

$$m(\widehat{A}) = m(\widehat{B}) = 60^\circ$$

ADE üçgeninde

$$m(\widehat{E}) = 30^\circ$$

$$|AD| = 4 \Rightarrow |AE| = 8 \text{ br}$$

$$(30^\circ - 60^\circ - 90^\circ)$$

CEF ikizkenar üçgeninde,

$$|CF| = |EC| = 2 \text{ br}$$

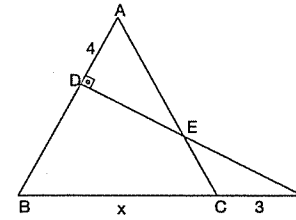
$$|AC| = 10 \text{ br olur.}$$

$$|BC| = |AC| = 10 \text{ br olur.}$$

Cevap B

TEST - 5

1.



ABC eşkenar üçgen

B, C, F doğrusal

$$[DF] \perp [AB]$$

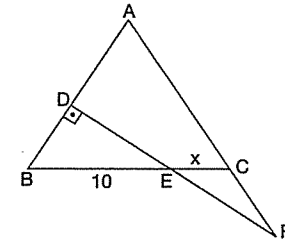
$$|AD| = 4 \text{ br}$$

$$|CF| = 3 \text{ br}$$

Yukarıdaki verilere göre, $|BC| = x$ kaç br dir?

- A) 10 B) 11 C) 12 D) 13 E) 14

3.



ABC eşkenar üçgen

D, E, F doğrusal

$$[DF] \perp [AB]$$

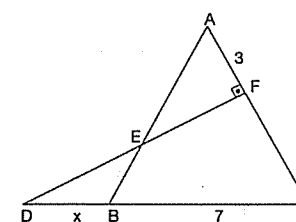
$$|BE| = 10 \text{ br}$$

$$|AF| = 16 \text{ br}$$

Yukarıdaki verilere göre, $|EC| = x$ kaç br dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

2.



ABC eşkenar üçgen

D, B, C doğrusal

$$[DF] \perp [AC]$$

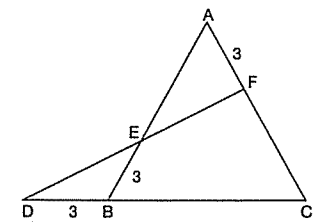
$$|BC| = 7 \text{ br}$$

$$|AF| = 3 \text{ br}$$

Yukarıdaki verilere göre, $|DB| = x$ kaç br dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

4.



ABC eşkenar üçgen

D, B, C ve

D, E, F doğrusal

$$|DB| = |EB| = |AF| = 3 \text{ br}$$

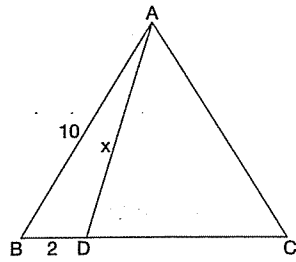
Yukarıdaki verilere göre, $\angle(ABC)$ kaç br dir?

- A) 30 B) 27 C) 24 D) 21 E) 18

1. B 2. E 3. D 4. B

Eşkenar Üçgen - VI

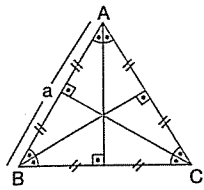
Örnek



ABC eşkenar üçgen
|AB| = 10 cm
|BD| = 2 cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

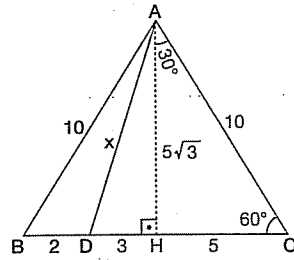
- A) $\sqrt{19}$ B) $\sqrt{21}$ C) $2\sqrt{19}$
D) $2\sqrt{21}$ E) $3\sqrt{17}$



Eşkenar üçgende bütün açıortaylar, kenarortaylar, yükseklikler çakışık ve hepsinin uzunlukları birbirine eşittir.

$$h_a = h_b = h_c = n_a = n_b = n_c = V_a = V_b = V_c = \frac{a\sqrt{3}}{2}$$

Çözüm



[AH] $\perp$ [CB] çizersek,
ABC eşkenar üçgen olduğundan,
[AH] hem yükseklik hem kenarortay olur.

$$|BH| = |HC| = \frac{|BC|}{2} = \frac{10}{2} = 5 \text{ cm olur.}$$

$$|BD| = 2 \text{ cm} \Rightarrow |DH| = 3 \text{ cm olur.}$$

$$|AH| = h = \frac{a\sqrt{3}}{2} = \frac{10\sqrt{3}}{2} = 5\sqrt{3} \text{ cm}$$

ADH dik üçgeninde

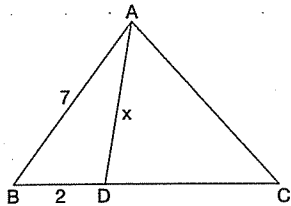
$$x^2 = 3^2 + (5\sqrt{3})^2 \Rightarrow x = \sqrt{84}$$

$$\Rightarrow x = 2\sqrt{21} \text{ cm olur.}$$

Cevap D

TEST - 6

1.

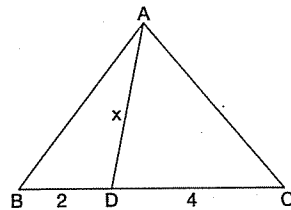


ABC eşkenar üçgen
|AB| = 7 cm
|BD| = 2 cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

- A) $\sqrt{26}$ B) $\sqrt{29}$ C) $\sqrt{33}$ D) $\sqrt{39}$ E) $\sqrt{41}$

2.

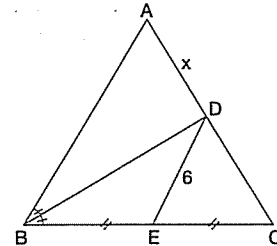


ABC bir eşkenar üçgen
|DC| = 4 cm
|BD| = 2 cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

- A) 4 B) $2\sqrt{6}$ C) $2\sqrt{7}$ D) 6 E) $2\sqrt{10}$

3.

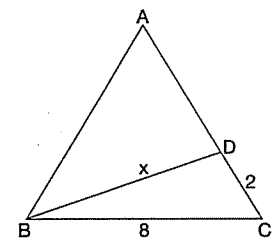


ABC bir eşkenar üçgen
[BD] açıortay
|BE| = |EC|
|DE| = 6 cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

4.



ABC bir eşkenar üçgen
|BC| = 8 cm
|DC| = 2 cm

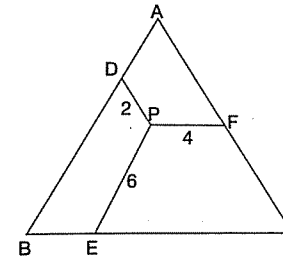
Yukarıdaki verilene göre, |BD| = x kaç cm dir?

- A) $\sqrt{13}$ B) $\sqrt{17}$ C) $2\sqrt{13}$ D) $2\sqrt{17}$ E) $3\sqrt{13}$

1. D 2. C 3. A 4. C

Eşkenar Üçgen - VII

Örnek

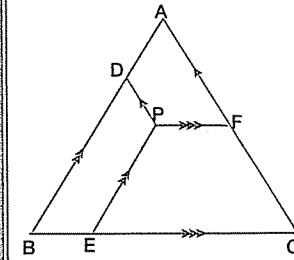


ABC eşkenar üçgen
[DP] // [AC]
[PF] // [BC]
[PE] // [AB]
|DP| = 2 br
|PF| = 4 br
|PE| = 6 br

Yukarıdaki verilene göre, ABC üçgeninin yüksekliği kaç br dir?

- A) $2\sqrt{3}$ B) $3\sqrt{3}$ C) $4\sqrt{3}$ D) $5\sqrt{3}$ E) $6\sqrt{3}$

Çözüm



ABC eşkenar üçgen
[PF] // [BC]
[PE] // [AB]
[PD] // [AC] ise,
|AB| = |PD| + |PE| + |PF|

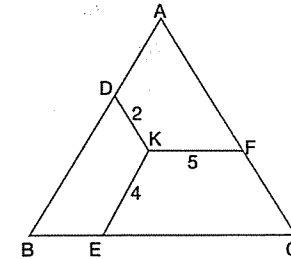
Buna göre, $a = 2 + 4 + 6 \Rightarrow a = 12 \text{ br olur.}$

$$h = \frac{a\sqrt{3}}{2} \Rightarrow h = \frac{12\sqrt{3}}{2} \Rightarrow h = 6\sqrt{3} \text{ br olur.}$$

Cevap E

TEST - 7

1.

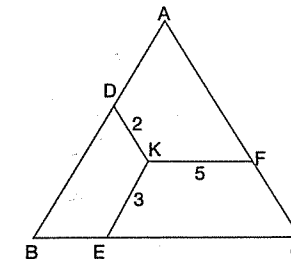


ABC eşkenar üçgen
[DK] // [AC]
[KF] // [BC]
[KE] // [AB]
|KF| = 5 br
|EK| = 4 br
|DK| = 2 br

Yukarıdaki verilene göre, Ç(ABC) kaç br dir?

- A) 11 B) 18 C) 24 D) 30 E) 33

2.

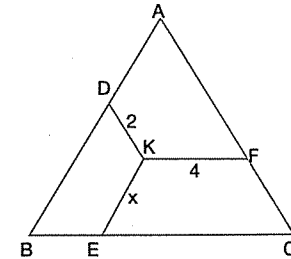


ABC eşkenar üçgen
[DK] // [AC]
[KF] // [BC]
[KE] // [AB]
|KF| = 5 cm
|EK| = 3 cm
|DK| = 2 cm

Yukarıdaki verilene göre, ABC üçgeninin yüksekliği kaç cm dir?

- A) $3\sqrt{3}$ B) $4\sqrt{3}$ C) $5\sqrt{3}$ D) $6\sqrt{3}$ E) $7\sqrt{3}$

3.

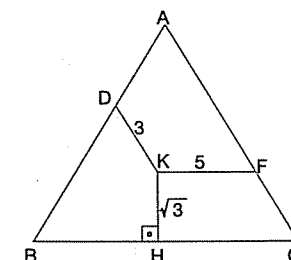


ABC eşkenar üçgen
[DK] // [AC]
[KF] // [BC]
[KE] // [AB]
|KF| = 4 br
|DK| = 2 br
 $h_a = 4\sqrt{3} \text{ br}$

Yukarıdaki verilene göre, |KE| = x kaç br dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

4.



ABC eşkenar üçgen
[DK] // [AC]
[KF] // [BC]
[KH] $\perp$ [BC]
|KF| = 5 cm
|DK| = 3 cm
|KH| = $\sqrt{3} \text{ cm}$

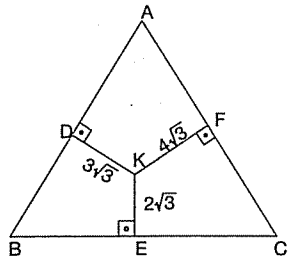
Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 13 B) 12 C) 11 D) 10 E) 9

1. E 2. C 3. A 4. D

Eşkenar Üçgen - VIII

Örnek

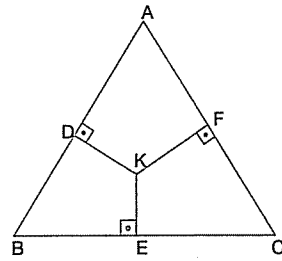


ABC eşkenar üçgen
 $[DK] \perp [AB]$
 $[KF] \perp [AC]$
 $[KE] \perp [BC]$
 $|KF| = 4\sqrt{3}$ br
 $|DK| = 3\sqrt{3}$ br
 $|KE| = 2\sqrt{3}$ br

Yukarıdaki verilene göre, $|BC|$ kaç br dir?

- A) 18 B) 16 C) 14 D) 12 E) 10

Çözüm



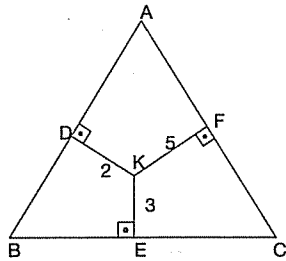
$[DK] \perp [AB]$
 $[EK] \perp [BC]$
 $[FK] \perp [AC]$
 $h = |DK| + |EK| + |FK|$
 Buna göre,
 $h = 2\sqrt{3} + 3\sqrt{3} + 4\sqrt{3}$
 $h = 9\sqrt{3}$

$$h = \frac{a\sqrt{3}}{2} \Rightarrow 9\sqrt{3} = \frac{a\sqrt{3}}{2} \Rightarrow a = 18 \text{ br olur.}$$

Cevap A

TEST - 8

1.

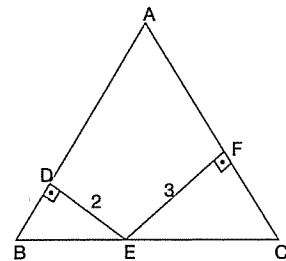


ABC eşkenar üçgen
 $[DK] \perp [AB]$
 $[KF] \perp [AC]$
 $[KE] \perp [BC]$
 $|KF| = 5$ br
 $|KE| = 3$ br
 $|DK| = 2$ br

Yukarıdaki verilene göre, ABC üçgeninin yüksekliği kaç br dir?

- A) 9 B) 10 C) 11 D) 12 E) 13

3.

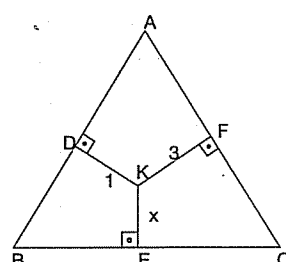


ABC eşkenar üçgen
 $[ED] \perp [AB]$
 $[EF] \perp [AC]$
 $|FE| = 3$ cm
 $|DE| = 2$ cm

Yukarıdaki verilene göre, ABC üçgeninin yüksekliği kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

2.

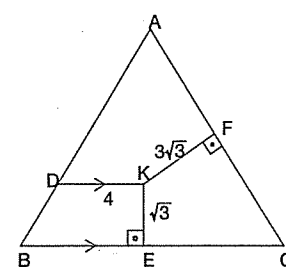


ABC eşkenar üçgen
 $[DK] \perp [AB]$
 $[KF] \perp [AC]$
 $[KE] \perp [BC]$
 $|KF| = 3$ br
 $|DK| = 1$ br
 $|AB| = 4\sqrt{3}$ br

Yukarıdaki verilene göre, $|KE| = x$ kaç br dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

4.



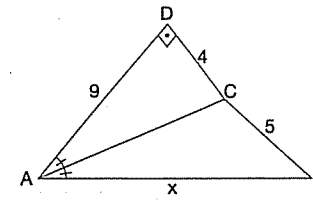
ABC eşkenar üçgen
 $[DK] \parallel [BC]$
 $[KF] \perp [AC]$
 $[KE] \perp [BC]$
 $|KF| = 3\sqrt{3}$ cm
 $|KE| = \sqrt{3}$ cm
 $|DK| = 4$ cm

Yukarıdaki verilene göre, $|BC|$ kaç cm dir?

- A) 8 B) 9 C) 10 D) 11 E) 12

Açıortay - I

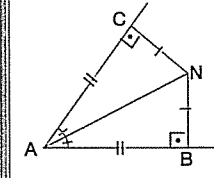
Örnek



$[AD] \perp [DC]$
 $m(\widehat{DAC}) = m(\widehat{CAB})$
 $|AD| = 9$ cm, $|CB| = 5$ cm, $|DC| = 4$ cm
 Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

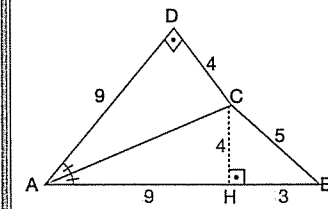
- A) 10 B) 12 C) 14 D) 16 E) 18

Çözüm



$[AN]$ açıortay olmak üzere, açıortay doğrusu üzerindeki herhangi bir noktadan kollara çizilen dikmelerin uzunlukları birbirine eşittir.

$|CN| = |NB|$ ve $|AC| = |AB|$
 $[CH] \perp [AB]$ çizilirse
 $|DC| = |CH| = 4$ cm
 $|AD| = |AH| = 9$ cm olur.

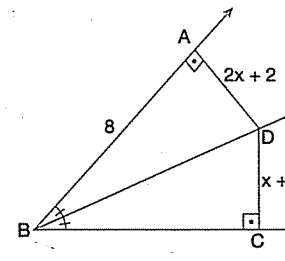


CHB dik üçgeninde, $|CB|^2 = |CH|^2 + |HB|^2$
 $5^2 = 4^2 + |HB|^2 \Rightarrow |HB| = 3$ cm (3-4-5)
 $|AB| = |AH| + |HB| \Rightarrow |AB| = 9 + 3 = 12$ cm olur.

Cevap B

TEST - 1

1.

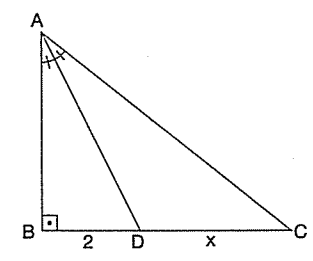


$[DA] \perp [AB]$
 $[DC] \perp [BC]$
 $m(\widehat{ABD}) = m(\widehat{DBC})$
 $|AB| = 8$ cm
 $|AD| = 2x+2$
 $|DC| = x+4$

Yukarıdaki verilene göre, $|BD|$ kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10

3.

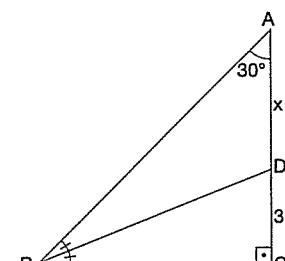


ABC bir dik üçgen
 $[AD]$ açıortay
 $|BD| = 2$ cm
 $|AC| = |AB| + 4$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) $\sqrt{5}$ B) $2\sqrt{5}$ C) $3\sqrt{5}$
 D) $4\sqrt{5}$ E) $5\sqrt{5}$

2.

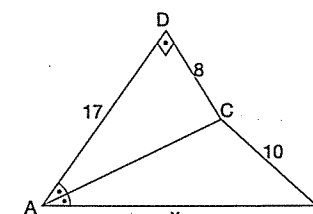


ABC bir dik üçgen
 $[BD]$ açıortay
 $m(\widehat{BAC}) = 30^\circ$
 $|DC| = 3$ cm

Yukarıdaki verilene göre, $|AD| = x$ kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

4.



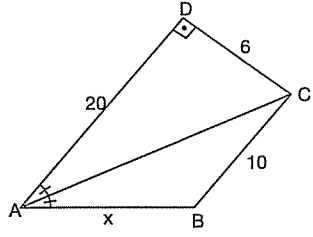
$[AD] \perp [DC]$
 $m(\widehat{DAC}) = m(\widehat{CAB})$
 $|AD| = 17$ cm
 $|CB| = 10$ cm
 $|DC| = 8$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 20 B) 21 C) 22 D) 23 E) 24

Açıortay - II

Örnek



$[AD] \perp [DC]$

$m(\widehat{DAC}) = m(\widehat{CAB})$, $m(\widehat{BAC}) > 90^\circ$

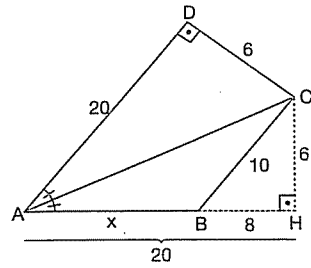
$|AD| = 20$ cm, $|BC| = 10$ cm, $|DC| = 6$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16



Çözüm



$[CH] \perp [AH]$ çizilirse

$|DC| = |CH| = 6$ cm

$|AD| = |AH| = 20$ cm

olur.

BHC dik üçgeninde

$|BC|^2 = |BH|^2 + |CH|^2$

$$10^2 = |BH|^2 + 6^2 \quad (6 - 8 - 10)$$

$|BH| = 8$ cm olur.

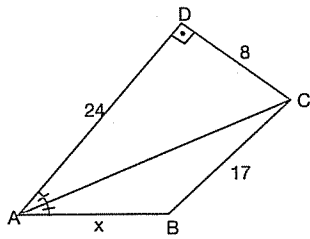
$|AH| = 20$ cm $\Rightarrow x + 8 = 20$

$\Rightarrow x = 12$ cm olur.

Cevap C

TEST - 2

1.



$[AD] \perp [DC]$

$m(\widehat{DAC}) = m(\widehat{CAB})$

$|AD| = 24$ cm

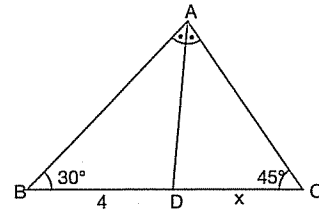
$|BC| = 17$ cm

$|DC| = 8$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 8 B) 9 C) 10 D) 11 E) 12

3.



ABC bir üçgen

$[AD]$ açıortay

$m(\widehat{ACB}) = 45^\circ$

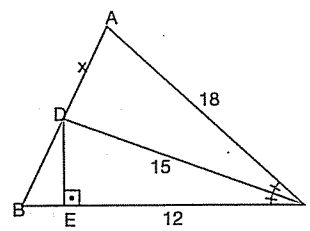
$m(\widehat{ABC}) = 30^\circ$

$|BD| = 4$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) $\sqrt{2}$ B) $2\sqrt{2}$ C) $3\sqrt{2}$
D) $4\sqrt{2}$ E) $5\sqrt{2}$

2.



ABC bir üçgen

$[DE] \perp [BC]$

$[CD]$ açıortay

$|AC| = 18$ cm

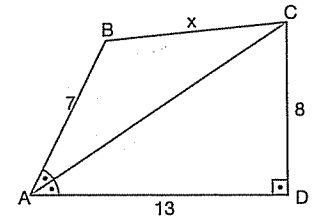
$|DC| = 15$ cm

$|EC| = 12$ cm

Yukarıdaki verilene göre, $|AD| = x$ kaç cm dir?

- A) $3\sqrt{5}$ B) $3\sqrt{7}$ C) $3\sqrt{13}$
D) $5\sqrt{7}$ E) $5\sqrt{13}$

4.



$[AD] \perp [CD]$

$m(\widehat{BAC}) = m(\widehat{CAD})$

$|AD| = 13$ cm

$|CD| = 8$ cm

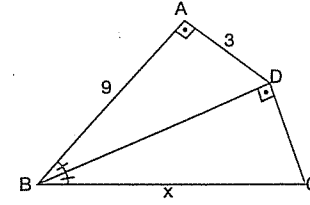
$|AB| = 7$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 13 B) 12 C) 11 D) 10 E) 9

Açıortay - III

Örnek



$[AD] \perp [BA]$, $[BD] \perp [DC]$

$m(\widehat{ABD}) = m(\widehat{DBC})$

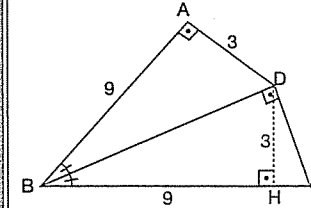
$|AB| = 9$ br, $|AD| = 3$ br

Yukarıdaki verilene göre, $|BC| = x$ kaç br dir?

- A) 10 B) 11 C) 12 D) 13 E) 14



Çözüm



$[DH] \perp [BC]$ çizersek

$|AD| = |DH| = 3$ br

$|AB| = |BH| = 9$ br

olur.

BDC üçgeninde

$|DH|^2 = |BH| \cdot |HC|$

(Öklid)

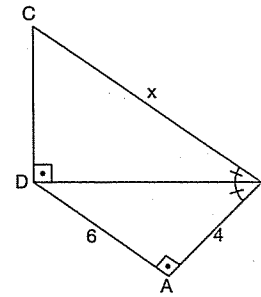
$$3^2 = 9 \cdot |HC| \Rightarrow |HC| = 1 \text{ br olur.}$$

$|BC| = |BH| + |HC| \Rightarrow |BC| = 9 + 1 = 10$ br olur.

Cevap A

TEST - 3

1.



$[AD] \perp [AB]$

$[BD] \perp [DC]$

$m(\widehat{ABD}) = m(\widehat{DBC})$

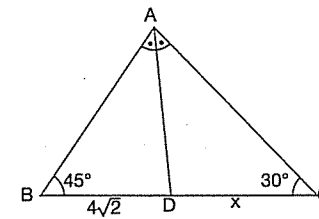
$|AD| = 6$ cm

$|AB| = 4$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 10 B) 11 C) 12 D) 13 E) 14

3.



ABC bir üçgen

$[AD]$ açıortay

$m(\widehat{ABC}) = 45^\circ$

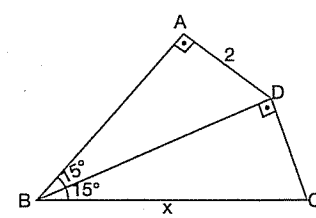
$m(\widehat{ACB}) = 30^\circ$

$|BD| = 4\sqrt{2}$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) 12 B) 10 C) 8 D) 6 E) 4

2.



$[AD] \perp [AB]$

$[BD] \perp [DC]$

$m(\widehat{ABD}) = 15^\circ$

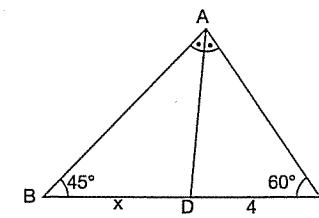
$m(\widehat{DBC}) = 15^\circ$

$|AD| = 2$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

4.



ABC bir üçgen

$[AD]$ açıortay

$m(\widehat{ACB}) = 60^\circ$

$m(\widehat{ABC}) = 45^\circ$

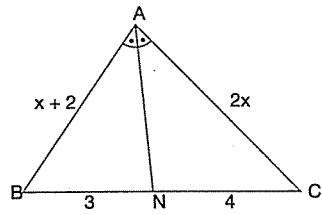
$|DC| = 4$ cm

Yukarıdaki verilene göre, $|BD| = x$ kaç cm dir?

- A) $2\sqrt{2}$ B) $2\sqrt{3}$ C) $2\sqrt{6}$
D) $3\sqrt{3}$ E) $3\sqrt{6}$

Açıortay - IV

Örnek



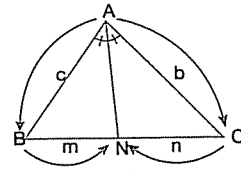
ABC bir üçgen
[AN] açıortay
|NC| = 4 br
|BN| = 3 br
|AC| = 2x
|AB| = x + 2

Yukarıdaki verilere göre, x kaç br dir?

- A) 1 B) 2 C) 3 D) 4 E) 5



Çözüm



$$\frac{c}{m} = \frac{b}{n}$$

İç açıortay teoremine göre,

$$\frac{x+2}{3} = \frac{2x}{4}$$

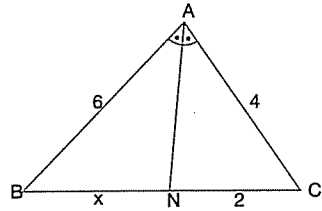
$$\Rightarrow 4x + 8 = 6x$$

$$\Rightarrow x = 4 \text{ br bulunur.}$$

Cevap D

TEST - 4

1.

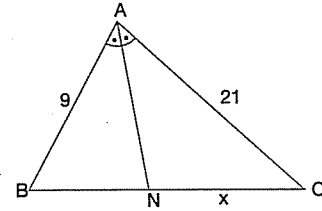


ABC bir üçgen
[AN] açıortay
|AB| = 6 br
|AC| = 4 br
|NC| = 2 br

Yukarıdaki verilere göre, |BN| = x kaç br dir?

- A) 8 B) 6 C) 5 D) 4 E) 3

3.

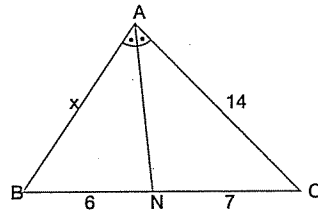


ABC bir üçgen
[AN] açıortay
|AB| = 9 cm
|AC| = 21 cm
|BC| = 20 cm

Yukarıdaki verilere göre, |NC| = x kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16

2.

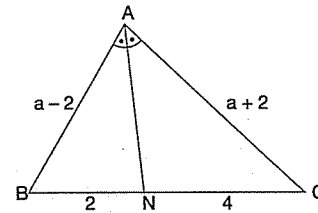


ABC bir üçgen
[AN] açıortay
|AC| = 14 cm
|NC| = 7 cm
|BN| = 6 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

4.



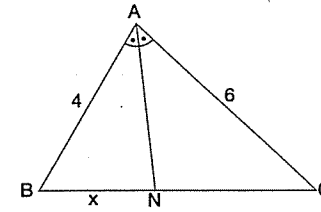
ABC bir üçgen
[AN] açıortay
|NC| = 4 br
|BN| = 2 br
|AC| = a + 2
|AB| = a - 2

Yukarıdaki verilere göre, a kaç br dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

Açıortay - V

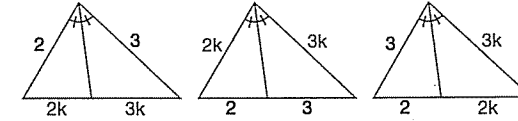
Örnek



ABC bir üçgen
[AN] açıortay
|AB| = 4 cm
|AC| = 6 cm
Ç(ABC) = 15 cm

Yukarıdaki verilere göre, |BN| = x kaç cm dir?

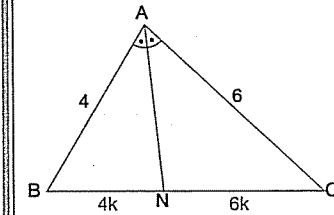
- A) 5 B) 4 C) 3 D) 2 E) 1



şeklinde yazabiliriz.



Çözüm



|BN| = 4k dersek,
|NC| = 6k olur.

$$\text{Ç(ABC)} = 15 \text{ cm} \Rightarrow 4 + 6 + 10k = 15$$

$$\Rightarrow 10k = 5$$

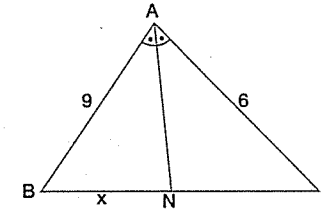
$$\Rightarrow k = \frac{1}{2}$$

$$|BN| = 4k = 4 \cdot \frac{1}{2} = 2 \text{ cm olur.}$$

Cevap D

TEST - 5

1.

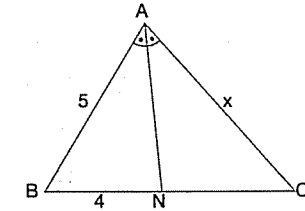


ABC bir üçgen
[AN] açıortay
|AC| = 6 cm
|AB| = 9 cm
Ç(ABC) = 20 cm

Yukarıdaki verilere göre, |BN| = x kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

3.

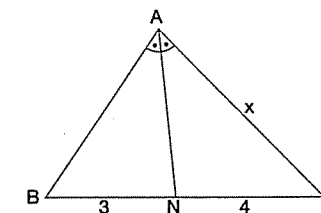


ABC bir üçgen
[AN] açıortay
|AB| = 5 br
|BN| = 4 br
|AC| + |NC| = 18 br

Yukarıdaki verilere göre, |AC| = x kaç br dir?

- A) 14 B) 12 C) 10 D) 8 E) 6

2.

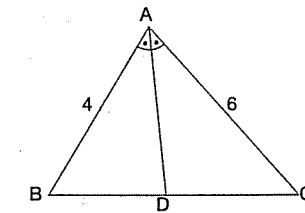


ABC bir üçgen
[AN] açıortay
|NC| = 4 cm
|BN| = 3 cm
Ç(ABC) = 28 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) 21 B) 18 C) 15 D) 12 E) 9

4.



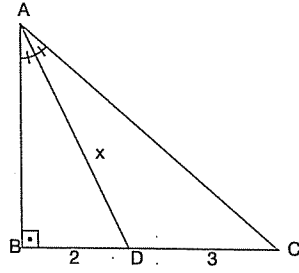
ABC bir üçgen
[AD] açıortay
|AC| = 6 cm
|AB| = 4 cm
|DC| - |BD| = 1 cm

Yukarıdaki verilere göre, |BD| kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Açıortay - VI

Örnek

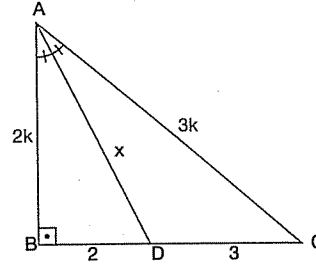


ABC bir dik
üçgen
[AB] $\perp$ [BC]
[AD] açıortay
|DC| = 3 cm
|BD| = 2 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $2\sqrt{2}$ B) $2\sqrt{3}$ C) $2\sqrt{6}$
D) $3\sqrt{3}$ E) $3\sqrt{6}$

Çözüm



İç açıortay teoreminde
|AB| = 2k, |AC| = 3k
ABC dik üçgeninde
|AC|² = |AB|² + |BC|²
(Pisagor)
 $\Rightarrow 9k^2 = 4k^2 + 25$
 $\Rightarrow 5k^2 = 25$
 $\Rightarrow k = \sqrt{5}$ olur.

|AB| = 2k $\Rightarrow$ |AB| = $2\sqrt{5}$ cm olur.

ABD dik üçgeninde,

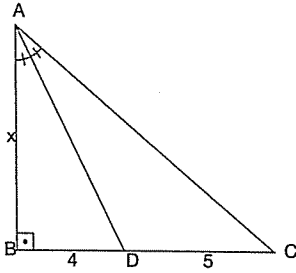
$$|AD|^2 = |AB|^2 + |BD|^2$$

$$x^2 = (2\sqrt{5})^2 + 2^2 \Rightarrow x^2 = 24 \Rightarrow x = 2\sqrt{6} \text{ cm olur.}$$

Cevap C

TEST - 6

1.

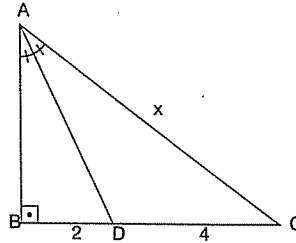


ABC dik üçgen
[AB] $\perp$ [BC]
[AD] açıortay
|DC| = 5 cm
|BD| = 4 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 9 B) 12 C) 13 D) 15 E) 16

2.

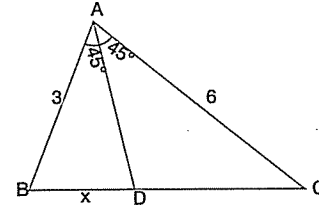


ABC dik üçgen
[AB] $\perp$ [BC]
[AD] açıortay
|DC| = 4 cm
|BD| = 2 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $6\sqrt{2}$ B) $5\sqrt{3}$ C) $5\sqrt{2}$ D) $4\sqrt{3}$ E) $4\sqrt{2}$

3.

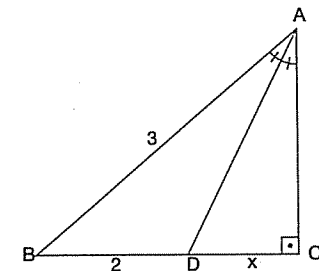


ABC bir üçgen
 $m(\widehat{BAD}) = 45^\circ$
 $m(\widehat{DAC}) = 45^\circ$
|AC| = 6 cm
|AB| = 3 cm

Yukarıdaki verilere göre, |BD| = x kaç br dir?

- A) $5\sqrt{5}$ B) $4\sqrt{5}$ C) $3\sqrt{5}$ D) $2\sqrt{5}$ E) $\sqrt{5}$

4.



ABC bir dik
üçgen
[AB] $\perp$ [BC]
[AD] açıortay
|AB| = 3 cm
|BD| = 2 cm

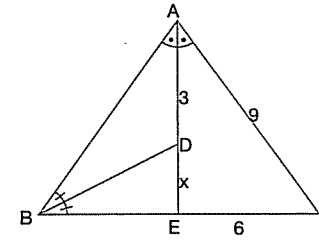
Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) $\frac{10}{7}$ B) $\frac{10}{9}$ C) $\frac{10}{11}$ D) $\frac{10}{13}$ E) $\frac{10}{17}$

1. B 2. D 3. E 4. D

Açıortay - VII

Örnek

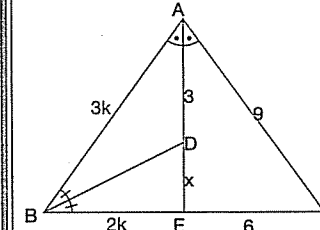


ABC bir üçgen
[AE] ve [BD]
açıortaylar
|AC| = 9 cm
|EC| = 6 cm
|AD| = 3 cm

Yukarıdaki verilere göre, |DE| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



ABC üçgeninde iç
açıortay teoreminden;
 $\frac{|AB|}{|BE|} = \frac{9}{6}$ ise,
|AB| = 3k
|BE| = 2k olur.

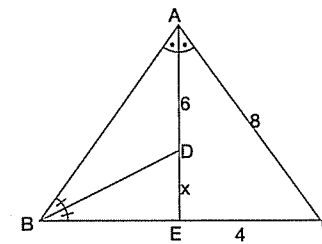
ABE üçgeninde iç açıortay teoreminden

$$\frac{2k}{x} = \frac{3k}{3} \Rightarrow x = 2 \text{ cm olur.}$$

Cevap B

TEST - 7

1.

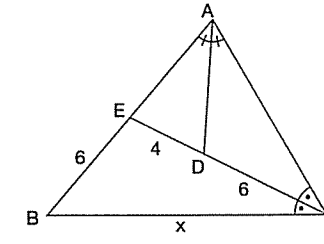


ABC bir üçgen
[AE] ve [BD]
açıortaylar
|AC| = 8 cm
|EC| = 4 cm
|AD| = 6 cm

Yukarıdaki verilere göre, |DE| = x kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

3.

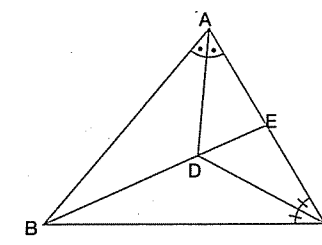


ABC bir üçgen
[AD] ve [CE]
açıortaylar
|DC| = 6 cm
|BE| = 6 cm
|ED| = 4 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 9 B) 10 C) 11 D) 12 E) 13

2.

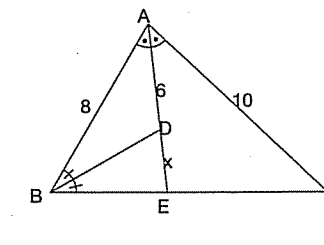


ABC bir üçgen
[AD] ve [CD]
açıortaylar
|AC| = 4 cm
3|DE| = |BD|

Yukarıdaki verilere göre, Ç(ABC) kaç cm dir?

- A) 18 B) 16 C) 14 D) 12 E) 10

4.



ABC bir üçgen
[AE] ve [BD]
açıortaylar
|AC| = 10 cm
|AB| = 8 cm
|AD| = 6 cm
|BC| = 9 cm

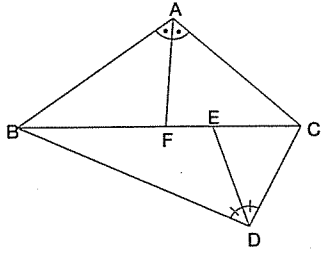
Yukarıdaki verilere göre, |DE| = x kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

1. C 2. B 3. A 4. E

Açıortay - VIII

Örnek

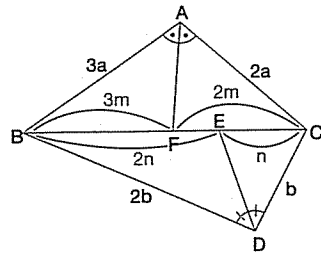


[AF] ve [DE]
açıortaylar
 $2|AB| = 3|AC|$
 $2|DC| = |BD|$
 $|BC| = 15$ cm

Yukarıdaki verilere göre, $|EF|$ kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

Çözüm



ABC üçgeninde açı-
ortay teoreminden,
 $|BF| = 3m$
 $|FC| = 2m$ olsun.
 $5m = 15$ cm ise
 $m = 3$ cm dir.

$|BF| = 9$ cm, $|FC| = 6$ cm olur.

DBC üçgeninde açıortay teoreminden,

$|BE| = 2n$ $|EC| = n$ olsun.

$3n = 15$ cm ise, $n = 5$ cm olur.

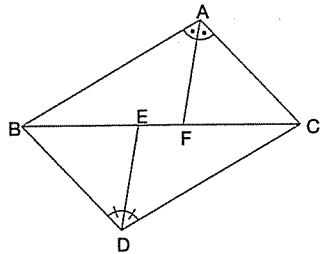
$|BE| = 10$ cm, $|EC| = 5$ cm olur.

$|EF| = |BE| - |BF| \Rightarrow |EF| = 10 - 9 = 1$ cm bulunur.

Cevap E

TEST - 8

1.

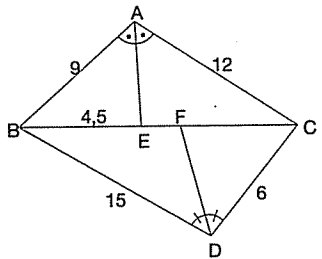


[AF] ve [ED]
açıortaylar
 $3|AB| = 5|AC|$
 $3|DC| = 5|BD|$
 $|BC| = 16$ cm

Yukarıdaki verilere göre, $|EF|$ kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

2.

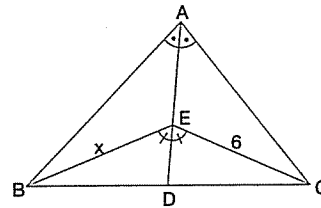


[AE] ve [FD]
açıortaylar
 $|AB| = 9$ cm
 $|AC| = 12$ cm
 $|BE| = 4,5$ cm
 $|BD| = 15$ cm
 $|DC| = 6$ cm

Yukarıdaki verilere göre, $|FC|$ kaç cm dir?

- A) 3 B) 3,5 C) 4 D) 4,5 E) 5

3.

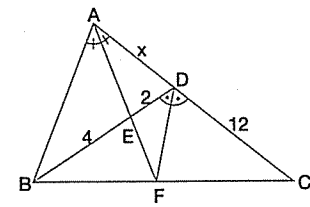


ABC bir üçgen
[AD] ve [ED]
açıortaylar
 $4|AC| = 3|AB|$
 $|EC| = 6$ br

Yukarıdaki verilere göre, $|BE| = x$ kaç br dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

4.



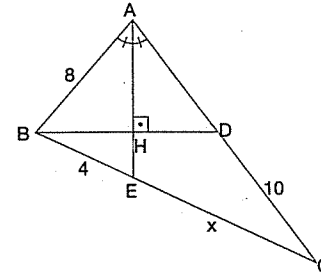
ABC bir üçgen
[AF] ve [DF]
açıortaylar
 $|DC| = 12$ cm
 $|BE| = 4$ cm
 $|ED| = 2$ cm

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) 8 B) 6 C) 5 D) 4 E) 3

Açıortay - IX

Örnek

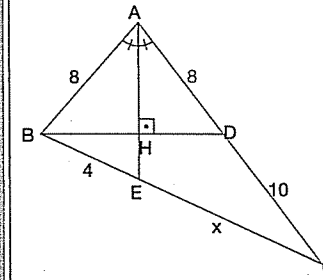


ABC bir üçgen
[AE] $\perp$ [BD]
[AE] açıortay
 $|DC| = 10$ cm
 $|AB| = 8$ cm
 $|BE| = 4$ cm

Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10

Çözüm



ABD üçgeninde
[AH] hem yükseklik
hem de açıortay oldu-
ğundan
 $|AB| = |AD| = 8$ cm dir.

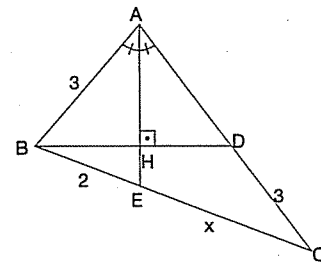
ABC üçgeninde [AE] iç açıortay olduğundan,

$$\frac{|AB|}{|BE|} = \frac{|AC|}{x} \Rightarrow \frac{8}{4} = \frac{18}{x} \Rightarrow x = 9 \text{ cm olur.}$$

Cevap D

TEST - 9

1.

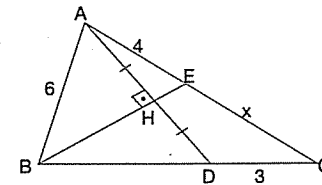


ABC bir üçgen
[AE] $\perp$ [BD]
[AE] açıortay
 $|AB| = 3$ cm
 $|DC| = 3$ cm
 $|BE| = 2$ cm

Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.

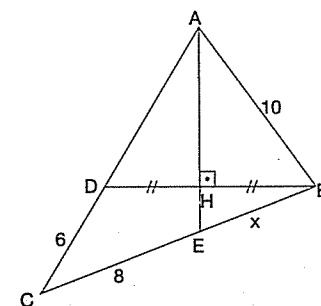


ABC bir üçgen
[BE] $\perp$ [AD]
[AH] = [HD]
 $|AB| = 6$ cm
 $|AE| = 4$ cm
 $|DC| = 3$ cm

Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10

2.

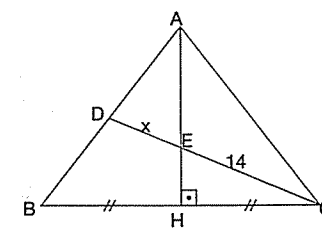


ABC bir üçgen
[AE] $\perp$ [DB]
[DH] = [HB]
 $|AB| = 10$ cm
 $|CE| = 8$ cm
 $|CD| = 6$ cm

Yukarıdaki verilere göre, $|EB| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



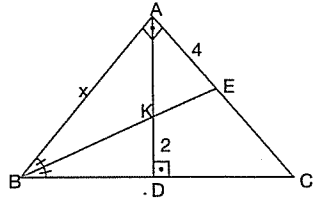
ABC bir üçgen
[AH] $\perp$ [BC]
[BH] = [HC]
 $\frac{|AD|}{|BD|} = \frac{4}{3}$
 $|EC| = 14$ br

Yukarıdaki verilere göre, $|DE| = x$ kaç br dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

Açıortay - X

Örnek



ABC bir dik
üçgen
[AB] ⊥ [AC]
[AD] ⊥ [BC]
[BE] açıortay

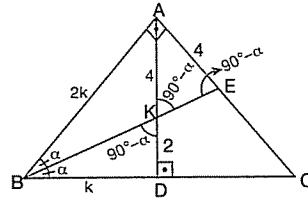
$$|AE| = 4 \text{ br}, |KD| = 2 \text{ br}$$

Yukarıdaki verilene göre, |AB| = x kaç br dir?

- A) 2 B) $2\sqrt{3}$ C) 4 D) $4\sqrt{3}$ E) 6



Çözüm



$m(\widehat{ABE}) = m(\widehat{EBC}) = \alpha$
dersek
 $m(\widehat{BKD}) = 90^\circ - \alpha$
 $m(\widehat{AEK}) = 90^\circ - \alpha$ dir.

AKE ikizkenar üçgeninde, $|AK| = |AE| = 4 \text{ br}$ bulunur.

ABD üçgeninde açıortay teoreminden yararlanarak

$|AB| = 2|BD|$ bulunur.

$$|AB|^2 = |BD|^2 + |AD|^2 \text{ (Pisagor)}$$

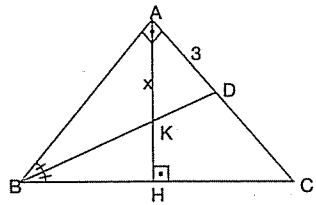
$$(2k)^2 = k^2 + 6^2 \Rightarrow 4k^2 = k^2 + 36 \Rightarrow k = 2\sqrt{3} \text{ br}$$

$$|AB| = 2k \Rightarrow |AB| = 4\sqrt{3} \text{ br olarak bulunur.}$$

Cevap D

TEST - 10

1.

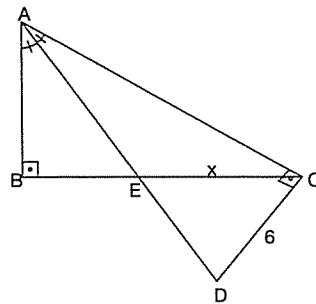


ABC bir dik
üçgen
[AB] ⊥ [AC]
[AH] ⊥ [BC]
[BD] açıortay
|AD| = 3 br

Yukarıdaki verilene göre, |AK| = x kaç br dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

3.

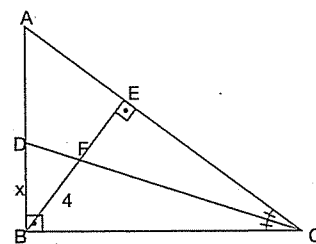


ABC bir dik
üçgen
[AB] ⊥ [AC]
[DC] ⊥ [AC]
[AD] açıortay
|DC| = 6 cm

Yukarıdaki verilene göre, |EC| = x kaç cm dir?

- A) 9 B) 8 C) 7 D) 6 E) 5

2.

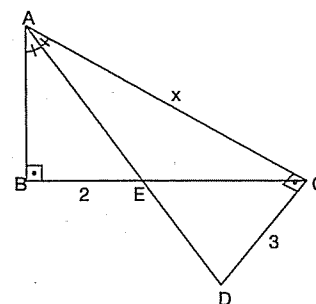


ABC bir dik
üçgen
[AB] ⊥ [BC]
[BE] ⊥ [AC]
[CD] açıortay
|FB| = 4 br

Yukarıdaki verilene göre, |DB| = x kaç br dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

4.



ABC bir dik
üçgen
[AB] ⊥ [AC]
[AC] ⊥ [CD]
[AD] açıortay
|CD| = 3 cm
|BE| = 2 cm

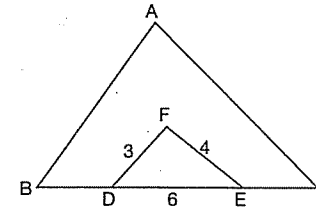
Yukarıdaki verilene göre, |AC| = x kaç cm dir?

- A) $\sqrt{5}$ B) $2\sqrt{5}$ C) $3\sqrt{5}$ D) $4\sqrt{5}$ E) $5\sqrt{5}$

1. C 2. B 3. D 4. C

Açıortay - XI

Örnek



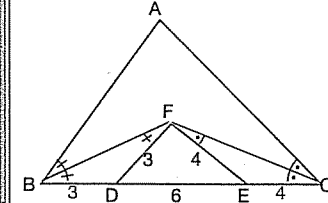
ABC bir üçgen
F, iç teğet çem-
berinin merkezi
[FD] // [AB]
[FE] // [AC]
|DE| = 6 br
|FE| = 4 br
|DF| = 3 br

Yukarıdaki verilene göre, |BC| kaç br dir?

- A) 10 B) 11 C) 12 D) 13 E) 14



Çözüm



İç açıortayların ke-
sim noktası iç teğet
çemberinin merkezi
olduğundan,
[BF] ve [FC] açıor-
taylardır.

$$[FD] // [AB] \Rightarrow m(\widehat{ABF}) = m(\widehat{BFD})$$

$$[EF] // [AC] \Rightarrow m(\widehat{ACF}) = m(\widehat{CFE}) \text{ olur.}$$

$$|BD| = |DF| = 3 \text{ br}$$

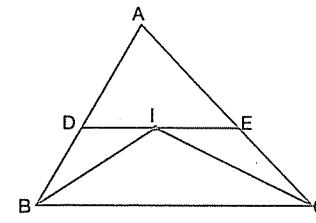
$$|EC| = |EF| = 4 \text{ br olacağından}$$

$$|BC| = 3 + 6 + 4 = 13 \text{ br bulunur.}$$

Cevap D

TEST - 11

1.

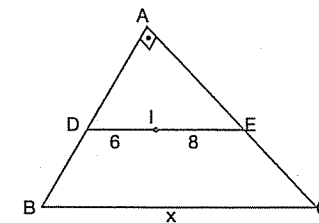


ABC bir üçgen
I, iç teğet çem-
berinin merkezi
[DE] // [BC]
|AB| = 10 br
|AC| = 12 br

Yukarıdaki verilene göre, Ç(ADE) kaç br dir?

- A) 16 B) 18 C) 20 D) 22 E) 24

3.

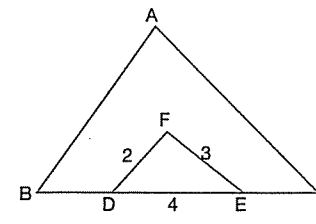


ABC bir dik
üçgen
I, iç teğet çem-
berinin merkezi
[DE] // [BC]
|EI| = 8 cm
|DI| = 6 cm

Yukarıdaki verilene göre, |BC| = x kaç cm dir?

- A) 24 B) 22 C) 20 D) 18 E) 16

2.



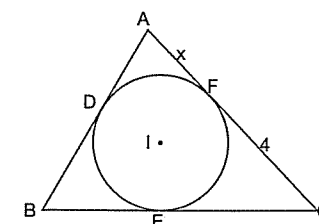
ABC bir üçgen
F, iç teğet çem-
berinin merkezi
[DF] // [AB]
[FE] // [AC]

$$|DE| = 4 \text{ cm}, |FE| = 3 \text{ cm}, |DF| = 2 \text{ cm}$$

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 8 B) 9 C) 10 D) 11 E) 12

4.



ABC bir üçgen
I merkezli
çember ABC
üçgenine içten
teğettir.
|BC| = 9 cm

$$|AB| = 7 \text{ cm}, |FC| = 4 \text{ cm}$$

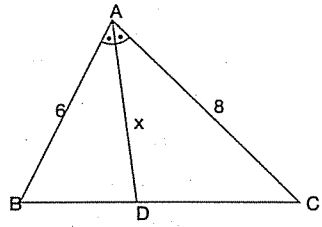
Yukarıdaki verilene göre, |AF| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

1. D 2. B 3. A 4. E

Açıortay - XII

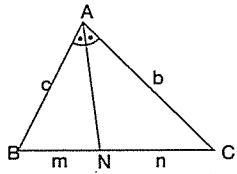
Örnek



ABC bir üçgen
[AD] açıortay
|AC| = 8 cm
|AB| = 6 cm
|BC| = 7 cm

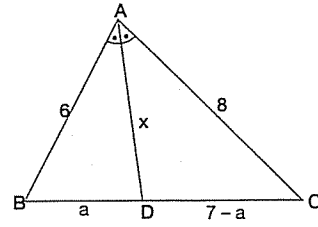
Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8



[AN] iç açıortay olmak üzere,
 $|AN|^2 = b \cdot c - m \cdot n$

Çözüm



|BD| = a dersek,
|DC| = 7 - a olur.
 $\frac{6}{a} = \frac{8}{7-a}$ ise,
 $8a = 42 - 6a$
 $14a = 42 \Rightarrow a = 3$ cm olur.

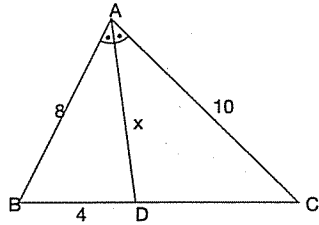
$$|AD|^2 = x^2 = 8 \cdot 6 - 3 \cdot 4$$

$$x^2 = 48 - 12 \Rightarrow x^2 = 36 \Rightarrow x = 6$$
 cm

Cevap C

TEST - 12

1.

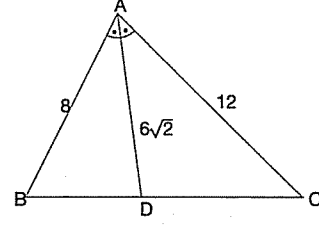


ABC bir üçgen
[AD] açıortay
|AC| = 10 cm
|AB| = 8 cm
|BD| = 4 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $3\sqrt{10}$ B) $2\sqrt{15}$ C) 7 D) 6 E) 5

3.

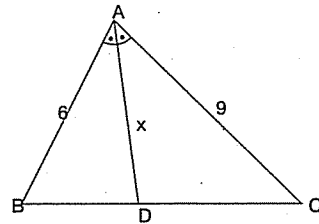


ABC bir üçgen
[AD] açıortay
|AC| = 12 br
|AB| = 8 br
|AD| = $6\sqrt{2}$ br

Yukarıdaki verilere göre, |BC| = x kaç br dir?

- A) 13 B) 12 C) 11 D) 10 E) 9

2.

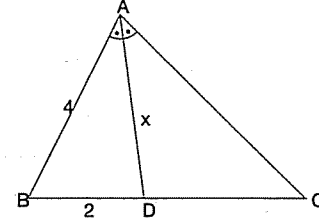


ABC bir üçgen
[AD] açıortay
|AC| = 9 cm
|AB| = 6 cm
|BC| = 5 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 4 B) $4\sqrt{3}$ C) 6 D) $6\sqrt{3}$ E) 8

4.



ABC bir üçgen
[AD] açıortay
|AB| = 4 cm
|BD| = 2 cm
 $\angle(ABC) = 15^\circ$

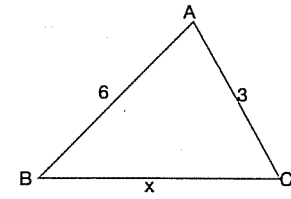
Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) $\sqrt{2}$ B) 3 C) $3\sqrt{2}$ D) 6 E) $6\sqrt{2}$

1. B 2. B 3. D 4. C

Açıortay - XIII

Örnek

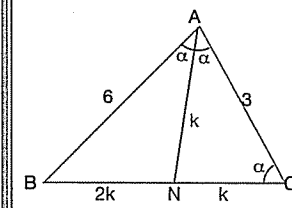


ABC bir üçgen
 $m(\widehat{BAC}) = 2m(\widehat{ACB})$
|AB| = 6 cm
|AC| = 3 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) $\sqrt{6}$ B) $2\sqrt{3}$ C) $2\sqrt{6}$
D) $3\sqrt{2}$ E) $3\sqrt{6}$

Çözüm



$m(\widehat{ACB}) = \alpha$ ise,
 $m(\widehat{A}) = 2\alpha$ olur.
 $m(\widehat{BAC})$ açısının açıortayı çizilirse
|NC| = k ve |BN| = 2k olur.

$$m(\widehat{NAC}) = m(\widehat{NCA}) \Rightarrow |NC| = |AN| = k \text{ olur.}$$

$$|AN|^2 = 6 \cdot 3 - 2k \cdot k$$

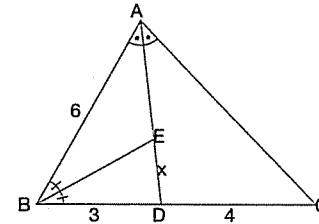
$$k^2 = 18 - 2k^2 \Rightarrow 3k^2 = 18 \Rightarrow k^2 = 6 \Rightarrow k = \sqrt{6}$$

$$|BC| = 3k \Rightarrow |BC| = 3\sqrt{6} \text{ cm olur.}$$

Cevap E

TEST - 13

1.

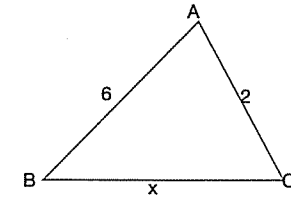


ABC bir üçgen
[AD] ve [BE] açıortaylar
|AB| = 6 cm
|DC| = 4 cm
|BD| = 3 cm

Yukarıdaki verilere göre, |ED| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.

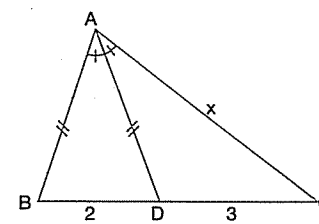


ABC bir üçgen
 $m(\widehat{BAC}) = 2m(\widehat{ACB})$
|AB| = 6 br
|AC| = 2 br

Yukarıdaki verilere göre, |BC| = x kaç br dir?

- A) $2\sqrt{3}$ B) $2\sqrt{6}$ C) $3\sqrt{3}$ D) $3\sqrt{6}$ E) $4\sqrt{3}$

2.

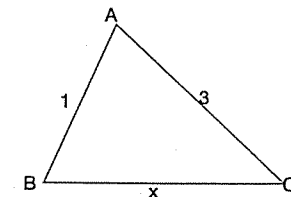


ABC bir üçgen
[AD] açıortay
|AB| = |AD|
|BD| = 2 cm
|DC| = 3 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) $\sqrt{6}$ B) $2\sqrt{3}$ C) $2\sqrt{6}$ D) $3\sqrt{3}$ E) $3\sqrt{6}$

4.



ABC bir üçgen
 $m(\widehat{BAC}) = 2m(\widehat{ACB})$
|AC| = 3 br
|AB| = 1 br

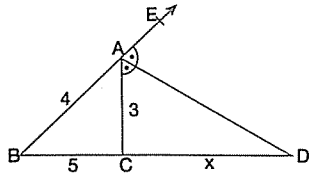
Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\sqrt{6}$ D) $2\sqrt{2}$ E) $2\sqrt{3}$

1. A 2. D 3. E 4. E

Dış Açortay Teoremi - I

Örnek

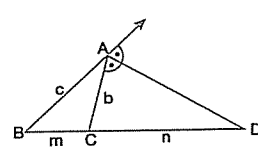


ABC bir üçgen
[AD] dış
açortay
|BC| = 5 cm
|AB| = 4 cm
|AC| = 3 cm

Yukarıdaki verilene göre, |CD| = x kaç cm dir?

- A) 6 B) 9 C) 10 D) 12 E) 15

Çözüm



[AD] dış açortay olmak üzere,

$$\frac{b}{c} = \frac{n}{m+n} \text{ dir.}$$

Dış açortay teoremi-
ne göre,

$$\frac{3}{4} = \frac{x}{x+5}$$

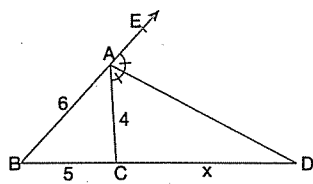
$$4x = 3x + 15$$

$$x = 15 \text{ cm olur.}$$

Cevap E

TEST - 14

1.

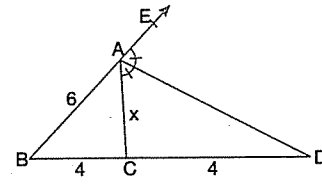


ABC bir üçgen
[AD] dış
açortay
|AB| = 6 br
|BC| = 5 br
|AC| = 4 br

Yukarıdaki verilene göre, |CD| = x kaç br dir?

- A) 5 B) 8 C) 10 D) 13 E) 15

3.

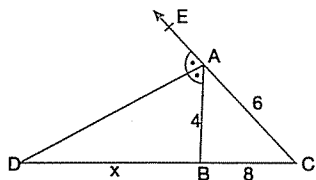


ABC bir üçgen
[AD] dış
açortay
|AB| = 6 cm
|BC| = 4 cm
|CD| = 4 cm

Yukarıdaki verilene göre, |AC| = x kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

2.

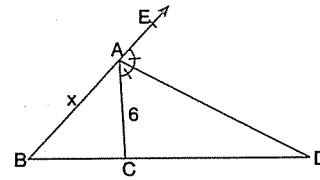


ABC bir üçgen
[AD] dış
açortay
|BC| = 8 cm
|AC| = 6 cm
|AB| = 4 cm

Yukarıdaki verilene göre, |DB| = x kaç cm dir?

- A) 8 B) 12 C) 14 D) 16 E) 20

4.



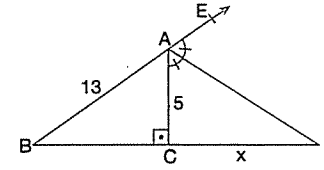
ABC bir üçgen
[AD] dış
açortay
2|BC| = |CD|
|AC| = 6 br

Yukarıdaki verilene göre, |AB| = x kaç br dir?

- A) 7 B) 9 C) 11 D) 13 E) 15

Dış Açortay Teoremi - II

Örnek

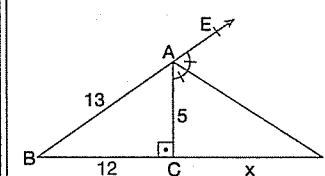


ABC bir dik
üçgen
[AC] ⊥ [BD]
[AD] dış
açortay
|AB| = 13 cm
|AC| = 5 cm

Yukarıdaki verilene göre, |CD| = x kaç cm dir?

- A) $\frac{7}{2}$ B) $\frac{9}{2}$ C) $\frac{11}{2}$ D) $\frac{13}{2}$ E) $\frac{15}{2}$

Çözüm



ABC dik üçgeninde
|AB|² = |AC|² + |BC|²
13² = 5² + |BC|²
(5 - 12 - 13)
|BC| = 12 cm olur.

[AD] dış açortay olmak üzere,

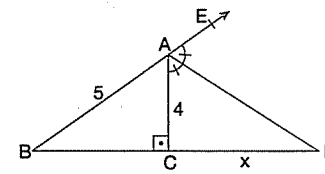
$$\frac{5}{13} = \frac{x}{x+12} \Rightarrow 13x = 5x + 60$$

$$\Rightarrow 8x = 60 \Rightarrow x = \frac{15}{2} \text{ olur.}$$

Cevap E

TEST - 15

1.

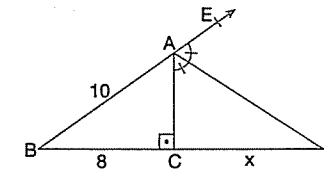


ABC bir dik
üçgen
[AC] ⊥ [BD]
[AD] dış
açortay
|AB| = 5 cm
|AC| = 4 cm

Yukarıdaki verilene göre, |CD| = x kaç cm dir?

- A) 9 B) 12 C) 15 D) 18 E) 21

6.

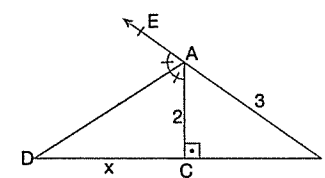


ABC bir dik
üçgen
[AC] ⊥ [BD]
[AD] dış
açortay
|AB| = 10 cm
|BC| = 8 cm

Yukarıdaki verilene göre, |CD| = x kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16

2.

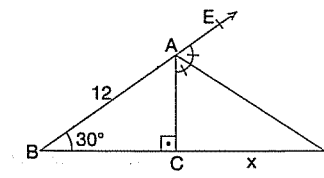


ABC bir dik
üçgen
[AC] ⊥ [BD]
[AD] dış
açortay
|AB| = 3 br
|AC| = 2 br

Yukarıdaki verilene göre, |CD| = x kaç br dir?

- A) $5\sqrt{5}$ B) $3\sqrt{6}$ C) $3\sqrt{5}$
D) $2\sqrt{6}$ E) $2\sqrt{5}$

4.



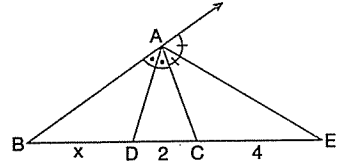
ABC bir dik
üçgen
[AC] ⊥ [BD]
m(ABC) = 30°
[AD] dış
açortay
|AB| = 12 cm

Yukarıdaki verilene göre, |CD| = x kaç cm dir?

- A) $3\sqrt{3}$ B) $4\sqrt{3}$ C) $5\sqrt{3}$
D) $6\sqrt{3}$ E) $8\sqrt{3}$

İç - Dış Açortay Teoremi - I

Örnek



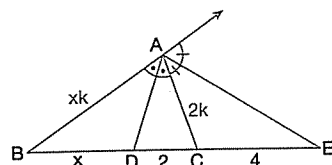
ABC üçgeninde
[AD] iç açortay
[AE] dış açortay

$$|CE| = 4 \text{ cm}, |DC| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|BD| = x$ kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10

Çözüm



[AD] iç açortay ise,
 $|AB| = x.k$
 $|AC| = 2.k$ olur.

[AE] dış açortay ise,

$$\frac{2k}{x.k} = \frac{4}{6+x} \Rightarrow 4x = 12 + 2x$$

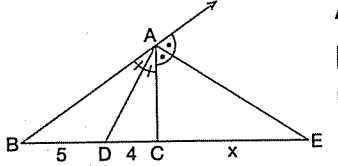
$$\Rightarrow 2x = 12$$

$$\Rightarrow x = 6 \text{ cm olur.}$$

Cevap A

TEST - 16

1.

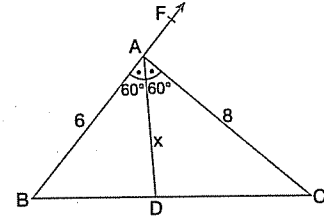


ABC üçgeninde
[AD] iç açortay
[AE] dış açortay
 $|BD| = 5 \text{ cm}$
 $|DC| = 4 \text{ cm}$

Yukarıdaki verilere göre, $|CE| = x$ kaç cm dir?

- A) 36 B) 32 C) 28 D) 24 E) 20

3.

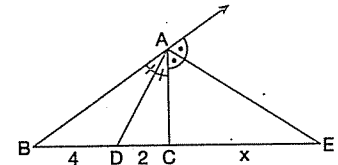


ABC bir üçgen
 $m(\widehat{BAD}) = 60^\circ$
 $m(\widehat{DAC}) = 60^\circ$
 $|AC| = 8 \text{ cm}$
 $|AB| = 6 \text{ cm}$

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) $\frac{22}{7}$ B) $\frac{24}{7}$ C) $\frac{26}{7}$ D) $\frac{25}{7}$ E) $\frac{27}{7}$

2.

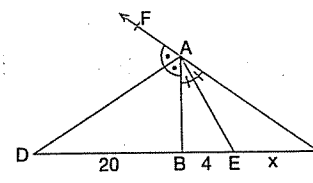


ABC üçgeninde
[AD] iç açortay
[AE] dış açortay
 $|BD| = 4 \text{ br}$
 $|DC| = 2 \text{ br}$

Yukarıdaki verilere göre, $|CE| = x$ kaç br dir?

- A) 3 B) 6 C) 9 D) 12 E) 15

4.



ABC üçgeninde
[AE] iç açortay
[AD] dış açortay
 $|DB| = 20 \text{ br}$
 $|BE| = 4 \text{ br}$

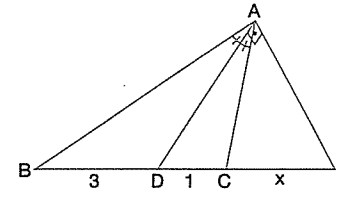
Yukarıdaki verilere göre, $|EC| = x$ kaç br dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

1. A 2. B 3. B 4. C

İç - Dış Açortay Teoremi - II

Örnek

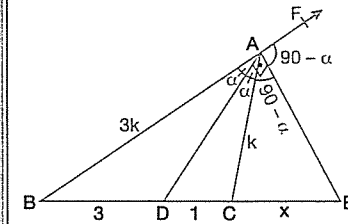


ABC bir üçgen
[AD] $\perp$ [AE]
[AD] iç açortay
 $|BD| = 3 \text{ cm}$
 $|DC| = 1 \text{ cm}$

Yukarıdaki verilere göre, $|CE| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



$m(\widehat{BAD}) = \alpha$ ve
 $m(\widehat{DAC}) = \alpha$
diyelim.
[BF çizilirse

$m(\widehat{CAE}) = 90^\circ - \alpha$ ve $m(\widehat{EAF}) = 90^\circ - \alpha$ dir.
O halde, ABC üçgeninde [AE] dış açortay olur.

[AD] iç açortay olduğundan $|AB| = 3k$ ve $|AC| = k$
[AE] dış açortay olduğundan

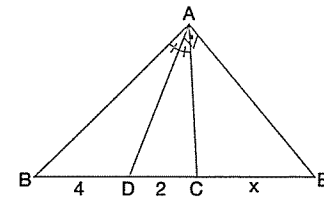
$$\frac{k}{3k} = \frac{x}{x+4} \Rightarrow 3x = x+4$$

$$\Rightarrow 2x = 4 \Rightarrow x = 2 \text{ cm olur.}$$

Cevap B

TEST - 17

1.

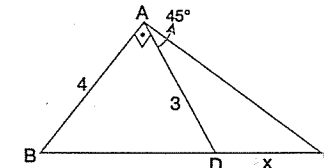


ABC bir üçgen
[AD] $\perp$ [AE]
[AD] iç açortay
 $|BD| = 4 \text{ br}$
 $|DC| = 2 \text{ br}$

Yukarıdaki verilere göre, $|CE| = x$ kaç br dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

3.

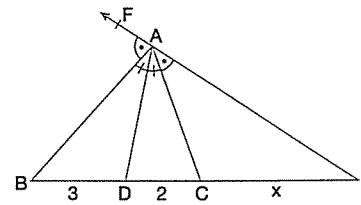


ABC bir üçgen
[BA] $\perp$ [AD]
 $m(\widehat{DAC}) = 45^\circ$
 $|AD| = 3 \text{ cm}$
 $|AB| = 4 \text{ cm}$

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) 15 B) 13 C) 11 D) 9 E) 7

2.

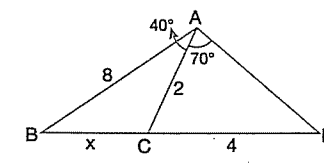


ABC bir üçgen, [AD] iç açortay
 $m(\widehat{FAB}) = m(\widehat{CAE})$
 $|BD| = 3 \text{ cm}, |DC| = 2 \text{ cm}$

Yukarıdaki verilere göre, $|CE| = x$ kaç cm dir?

- A) 18 B) 15 C) 12 D) 10 E) 8

4.



ABD bir üçgen
 $m(\widehat{DAC}) = 70^\circ$
 $m(\widehat{BAC}) = 40^\circ$

$|AB| = 8 \text{ cm}, |CD| = 4 \text{ cm}, |CA| = 2 \text{ cm}$

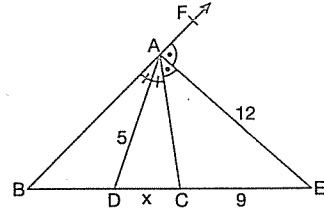
Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) 16 B) 15 C) 14 D) 13 E) 12

1. B 2. D 3. A 4. E

İç - Dış Açortay Teoremi - III

Örnek



ABC üçgeninde

[AD] iç açortay, [AE] dış açortay

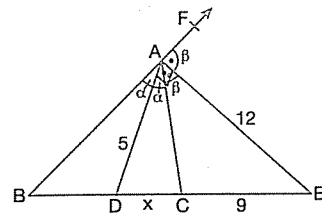
|AE| = 12 cm, |CE| = 9 cm, |AD| = 5 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5



Çözüm



$$2\alpha + 2\beta = 180^\circ$$

$$\alpha + \beta = 90^\circ$$

Buna göre,
ADE dik üçgen olur.

$$|DE|^2 = |AD|^2 + |AE|^2 \Rightarrow (9 + x)^2 = 12^2 + 5^2$$

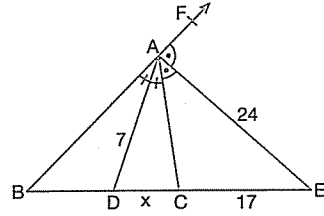
$$(5 - 12 - 13)$$

$$9 + x = 13 \Rightarrow x = 4 \text{ cm olur.}$$

Cevap D

TEST - 18

1.



ABC üçgeninde

[AD] iç açortay

[AE] dış açortay

|AE| = 24 cm

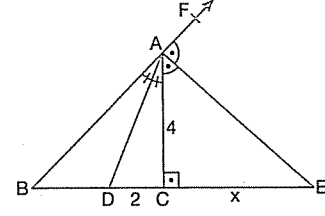
|CE| = 17 cm

|AD| = 7 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

3.



ABC üçgeninde

[AD] iç açortay

[AE] dış açortay

[AC] ⊥ [BE]

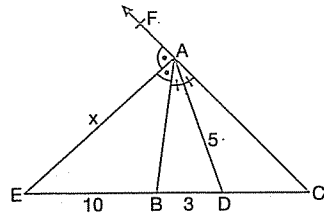
|AC| = 4 cm

|DC| = 2 cm

Yukarıdaki verilere göre, |CE| = x kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

2.



ABC üçgeninde

[AD] iç açortay

[AE] dış açortay

|EB| = 10 cm

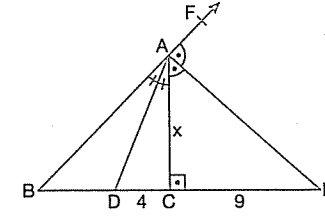
|AD| = 5 cm

|BD| = 3 cm

Yukarıdaki verilere göre, |AE| = x kaç cm dir?

- A) 17 B) 15 C) 12 D) 9 E) 7

4.



ABC üçgeninde

[AD] iç açortay

[AE] dış açortay

|CE| = 9 cm

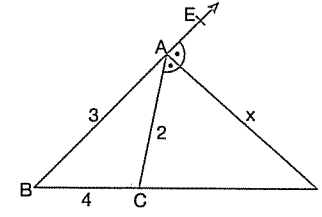
|DC| = 4 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

Dış Açortay Uzunluğu

Örnek



ABC bir üçgen

[AD] dış açortay

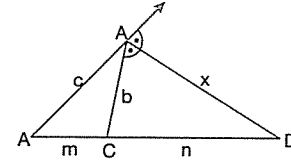
|AC| = 2 cm

|BC| = 4 cm

|AB| = 3 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

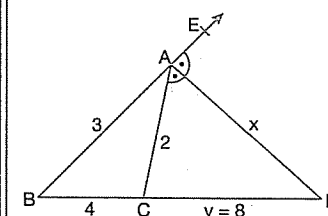
- A) $\sqrt{5}$ B) $\sqrt{10}$ C) $2\sqrt{5}$
D) $2\sqrt{10}$ E) $3\sqrt{10}$



$$x^2 = n \cdot (m + n) - b \cdot c$$



Çözüm



[AD] dış açortay olduğundan,

$$\frac{2}{3} = \frac{y}{4 + y}$$

$$3y = 8 + 2y$$

$$y = 8$$

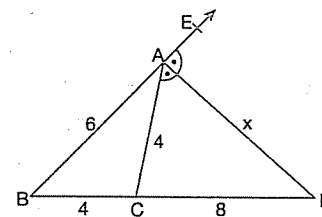
$$x^2 = 8 \cdot 12 - 3 \cdot 2$$

$$x^2 = 90 \Rightarrow x = 3\sqrt{10} \text{ cm olur.}$$

Cevap E

TEST - 19

1.



ABC bir üçgen

[AD] dış açortay

|CD| = 8 br

|AB| = 6 br

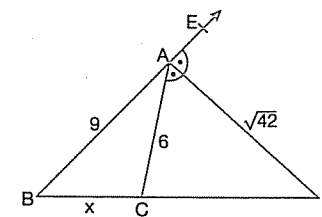
|BC| = 4 br

|AC| = 4 br

Yukarıdaki verilere göre, |AD| = x kaç br dir?

- A) $2\sqrt{2}$ B) $3\sqrt{2}$ C) $4\sqrt{2}$ D) $5\sqrt{2}$ E) $6\sqrt{2}$

3.



ABC bir üçgen

[AD] dış açortay

|AB| = 9 cm

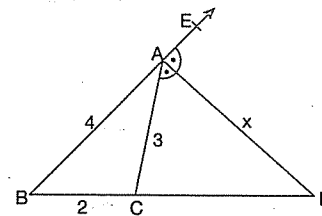
|AC| = 6 cm

|AD| = $\sqrt{42}$ cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

2.



ABC bir üçgen

[AD] dış açortay

|AB| = 4 cm

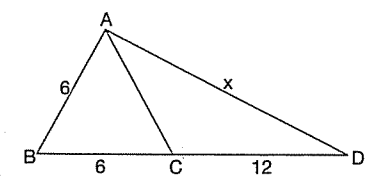
|AC| = 3 cm

|BC| = 2 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



ABD bir üçgen

$$m(\widehat{ACD}) = 2m(\widehat{CAD})$$

|CD| = 12 cm, |BC| = 6 cm, |AB| = 6 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

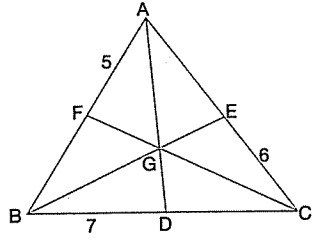
- A) $4\sqrt{5}$ B) $5\sqrt{3}$ C) $6\sqrt{3}$ D) $7\sqrt{3}$ E) $8\sqrt{3}$

1. D 2. C 3. B 4. C

1. E 2. C 3. A 4. E

Ağırlık Merkezi - I

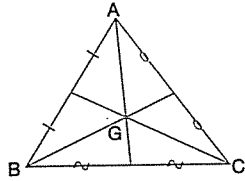
Örnek



ABC bir üçgen
G, ağırlık
merkezi
 $|BD| = 7$ cm
 $|EC| = 6$ cm
 $|AF| = 5$ cm

Yukarıdaki verilere göre, $\hat{C}(ABC)$ kaç cm dir?

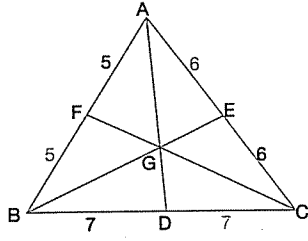
- A) 32 B) 34 C) 36 D) 38 E) 40



Kenarortayların kesiştiği
noktaya ağırlık merkezi
denir.



Çözüm



G ağırlık merkezi ol-
duğundan,
 $|BD| = |DC| = 7$ cm
 $|EC| = |AE| = 6$ cm
 $|AF| = |BF| = 5$ cm
olur.

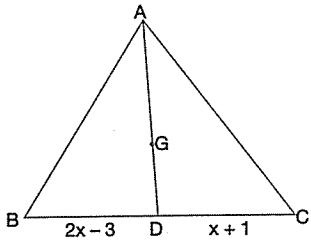
Buna göre, $\hat{C}(ABC) = 14 + 12 + 10$

$\hat{C}(ABC) = 36$ cm olur.

Cevap C

TEST - 1

1.

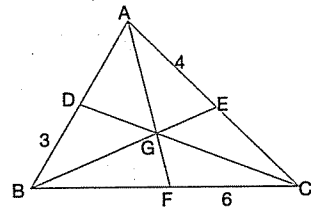


ABC bir üçgen
G, ağırlık merkezi
 $|BD| = 2x - 3$
 $|DC| = x + 1$

Yukarıdaki verilere göre, x kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

3.

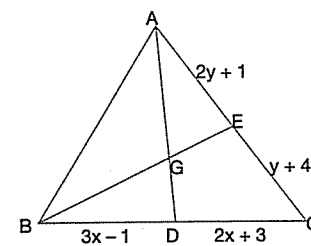


ABC bir üçgen
G, ağırlık
merkezi
 $|FC| = 6$ cm
 $|AE| = 4$ cm
 $|DB| = 3$ cm

Yukarıdaki verilere göre, $\hat{C}(ABC)$ kaç cm dir?

- A) 24 B) 26 C) 28 D) 30 E) 32

4.

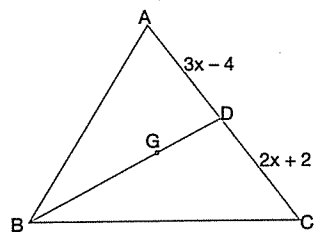


ABC bir üçgen
G, ağırlık
merkezi
 $|AE| = 2y + 1$
 $|EC| = y + 4$
 $|BD| = 3x - 1$
 $|DC| = 2x + 3$

Yukarıdaki verilere göre, x + y kaç br dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

2.



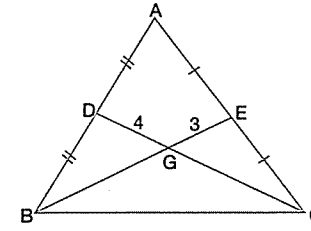
ABC bir üçgen
G, ağırlık
merkezi
 $|AD| = 3x - 4$
 $|DC| = 2x + 2$

Yukarıdaki verilere göre, $|AC|$ kaç br dir?

- A) 20 B) 22 C) 24 D) 26 E) 28

Ağırlık Merkezi - II

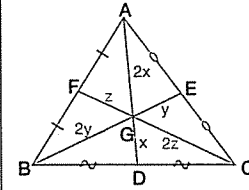
Örnek



ABC bir üçgen
[BE] ve [DC]
kenarortay
 $|DG| = 4$ cm
 $|EG| = 3$ cm

Yukarıdaki verilere göre, $|GB| + |GC|$ kaç cm
dir?

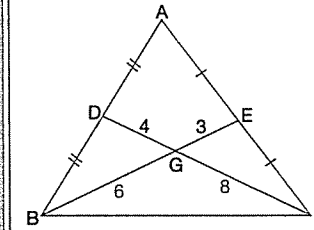
- A) 8 B) 10 C) 12 D) 14 E) 16



G ağırlık merkezi olmak
üzere,
 $|AG| = 2|GD|$
 $|BG| = 2|GE|$
 $|CG| = 2|GF|$



Çözüm



Bir üçgende iki kenar-
ortayın kesiştiği nokta
ağırlık merkezidir.

G ağırlık merkezi olduğundan

$$|GC| = 2 \cdot |DG| \Rightarrow |GC| = 2 \cdot 4 = 8 \text{ cm}$$

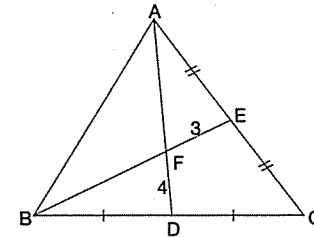
$$|GB| = 2 \cdot |EG| \Rightarrow |GB| = 2 \cdot 3 = 6 \text{ cm}$$

$$|GB| + |GC| = 6 + 8 = 14 \text{ cm olur.}$$

Cevap D

TEST - 2

1.

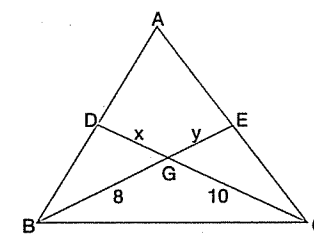


ABC bir üçgen
[BE] ve [AD]
kenarortay
 $|FD| = 4$ br
 $|FE| = 3$ br

Yukarıdaki verilere göre, $|AD| + |BE|$ kaç br
dir?

- A) 14 B) 17 C) 21 D) 24 E) 27

2.

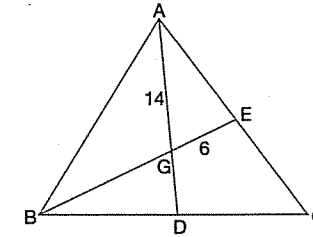


ABC bir üçgen
[DC] ve [BE]
kenarortay
 $|GC| = 10$ cm
 $|BG| = 8$ cm
 $|DG| = x$
 $|GE| = y$

Yukarıdaki verilere göre, x + y kaç cm dir?

- A) 7 B) 8 C) 9 D) 10 E) 11

3.

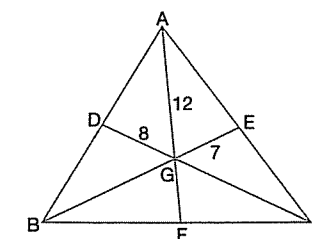


ABC bir üçgen
[BE] ve [AD]
kenarortay
 $|AG| = 14$ cm
 $|GE| = 6$ cm

Yukarıdaki verilere göre, $|BG| + |GD|$ kaç cm
dir?

- A) 19 B) 17 C) 15 D) 13 E) 11

4.



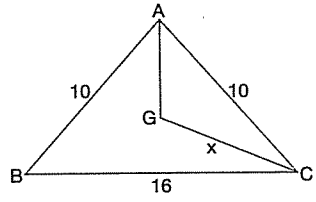
ABC bir üçgen
G, ağırlık merkezi
 $|AG| = 12$ cm
 $|GD| = 8$ cm
 $|GE| = 7$ cm

Yukarıdaki verilere göre, $V_a + V_b + V_c$ kaç cm
dir?

- A) 51 B) 54 C) 57 D) 60 E) 63

Ağırlık Merkezi - III

Örnek

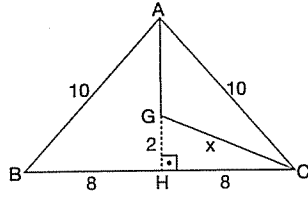


ABC bir üçgen
G, ağırlık
merkezi
 $|BC| = 16$ cm
 $|AB| = 10$ cm
 $|AC| = 10$ cm

Yukarıdaki verilere göre, $|GC| = x$ kaç cm dir?

- A) $\sqrt{15}$ B) $\sqrt{17}$ C) $2\sqrt{15}$
D) $2\sqrt{17}$ E) $6\sqrt{2}$

Çözüm



[GH] yi çizelim ABC
ikizkenar üçgen ve G
ağırlık merkezi oldu-
ğundan,
[AH] $\perp$ [BC]. olur.

$|BC| = 16$ cm $\Rightarrow |HC| = 8$ cm olur.

AHC üçgeninde, $|AC|^2 = |HC|^2 + |AH|^2$

$$\Rightarrow 10^2 = 8^2 + |AH|^2 \quad (6 - 8 - 10)$$

$$\Rightarrow |AH| = 6$$
 cm olur.

G ağırlık merkezi ve $|AH| = 6$ cm

$$|AG| = 2|GH| \text{ ve } |AH| = |AG| + |GH|$$

$$\Rightarrow |AH| = 2|GH| + |GH| \Rightarrow |AH| = 3|GH|$$

G ağırlık merkezi ve $3|GH| = 6 \Rightarrow |GH| = 2$ cm olur.

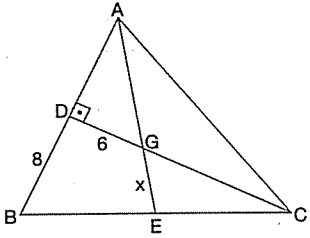
GHC üçgeninde, $x^2 = 2^2 + 8^2$ (Pisagor)

$$\Rightarrow x^2 = 4 + 64 = 68 \Rightarrow x = 2\sqrt{17}$$
 cm olur.

Cevap D

TEST - 3

1.

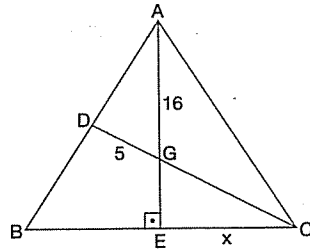


ABC bir üçgen
G, ağırlık
merkezi
[DC] $\perp$ [AB]
 $|DB| = 8$ cm
 $|DG| = 6$ cm

Yukarıdaki verilere göre, $|GE| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

2.

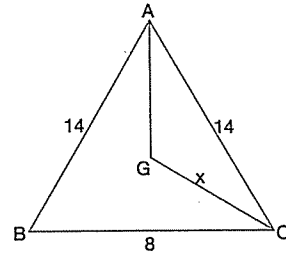


ABC bir üçgen
G, ağırlık
merkezi
[AE] $\perp$ [BC]
 $|AG| = 16$ cm
 $|DG| = 5$ cm

Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

- A) 13 B) 12 C) 10 D) 8 E) 6

3.

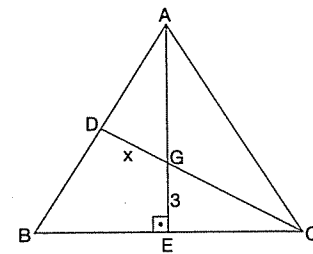


ABC bir üçgen
G, ağırlık merkezi
 $|AB| = 14$ cm
 $|AC| = 14$ cm
 $|BC| = 8$ cm

Yukarıdaki verilere göre, $|GC| = x$ kaç cm dir?

- A) 11 B) 10 C) 9 D) 8 E) 6

4.



ABC bir üçgen
G, ağırlık
merkezi
[AE] $\perp$ [BC]
 $|BC| = 8$ cm
 $|GE| = 3$ cm

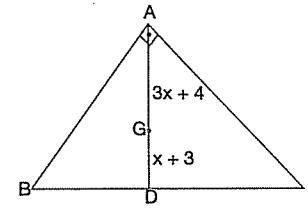
Yukarıdaki verilere göre, $|DG| = x$ kaç cm dir?

- A) $\frac{9}{2}$ B) $\frac{7}{2}$ C) $\frac{5}{2}$ D) $\frac{3}{2}$ E) $\frac{1}{2}$

1. A 2. E 3. E 4. C

Dik Üçgende Hipotenüse Ait Kenarortay - I

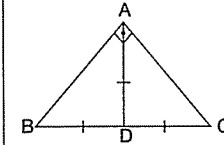
Örnek



ABC bir dik üçgen
[AB] $\perp$ [AC]
G, ağırlık merkezi
 $|AG| = 3x + 4$
 $|GD| = x + 3$

Yukarıdaki verilere göre, $|BC|$ kaç cm dir?

- A) 20 B) 24 C) 25 D) 28 E) 30

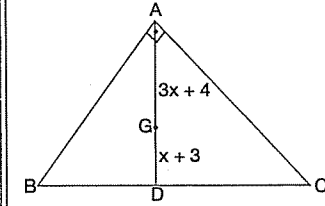


Dik üçgende hipotenüse ait
kenarortay uzunluğu hipotenüs
uzunluğunun yarısına eşittir.

$$|AD| = \frac{|BC|}{2}$$



Çözüm



G ağırlık merkezi ol-
duğundan
 $|AG| = 2|GD|$ dir.

$$\text{Buna göre, } 3x + 4 = 2 \cdot (x + 3) \Rightarrow 3x + 4 = 2x + 6$$

$$\Rightarrow x = 2 \text{ olur.}$$

$$|AD| = 4x + 7 \Rightarrow |AD| = 4 \cdot 2 + 7 = 15 \text{ cm olur.}$$

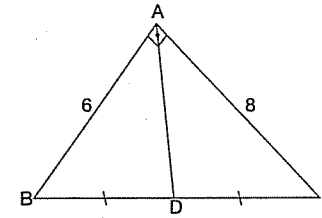
$$|AD| \text{ kenarortay olduğundan, } |AD| = \frac{|BC|}{2} \text{ olur.}$$

$$\text{Buna göre, } \frac{|BC|}{2} = 15 \Rightarrow |BC| = 30 \text{ cm olur.}$$

Cevap E

TEST - 4

1.

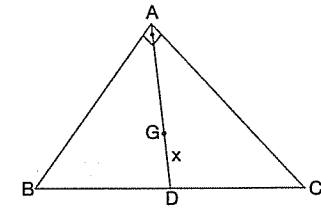


ABC bir dik
üçgen
[AB] $\perp$ [AC]
 $|BD| = |DC|$
 $|AC| = 8$ cm
 $|AB| = 6$ cm

Yukarıdaki verilere göre, $|AD|$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 10

3.

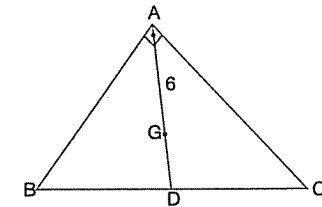


ABC bir dik
üçgen
[AB] $\perp$ [AC]
G, ağırlık merkezi
 $|BC| = 18$ cm

Yukarıdaki verilere göre, $|GD| = x$ kaç cm dir?

- A) 15 B) 12 C) 9 D) 6 E) 3

2.

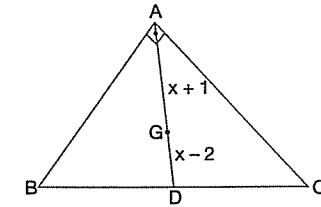


ABC bir dik
üçgen
[AB] $\perp$ [AC]
G, ağırlık merkezi
 $|AG| = 6$ cm

Yukarıdaki verilere göre, $|BC|$ kaç cm dir?

- A) 9 B) 12 C) 15 D) 18 E) 21

4.



ABC bir dik
üçgen
[AB] $\perp$ [AC]
G, ağırlık merkezi
 $|GD| = x - 2$ cm
 $|AG| = x + 1$ cm

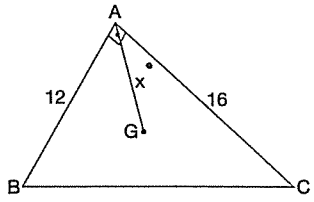
Yukarıdaki verilere göre, $|BC|$ kaç cm dir?

- A) 18 B) 15 C) 12 D) 9 E) 6

1. A 2. D 3. E 4. A

Dik Üçgende Hipotenüse Ait Kenarortay - II

Örnek

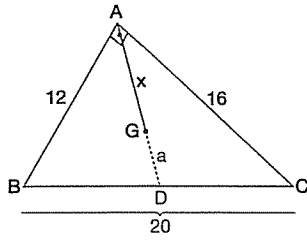


ABC bir dik üçgen
 $[AB] \perp [AC]$
 G, ağırlık merkezi
 $|AC| = 16$ cm
 $|AB| = 12$ cm

Yukarıdaki verilere göre, $|AG| = x$ kaç cm dir?

- A) $\frac{10}{3}$ B) $\frac{16}{3}$ C) 6 D) $\frac{20}{3}$ E) 7

Çözüm



ABC dik üçgeninde,
 $|BC|^2 = 12^2 + 16^2$
 $(12 - 16 - 20)$
 $|BC| = 20$ cm olur.
 AG yi uzatırsak G ağırlık merkezi olduğundan,
 $[AD]$ kenarortay olur.

$|BC| = 20$ cm $\Rightarrow |BD| = |DC| = |AD| = 10$ cm olur.
 (Muhteşem üçlü)

$|GD| = a$ dersek, $|AG| = 2a$ ve $|AD| = 3a$ olur.

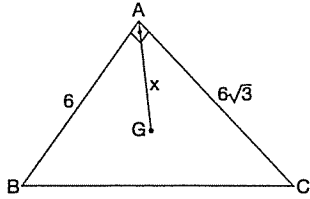
$$|AD| = 10 \text{ cm} \Rightarrow 3a = 10 \Rightarrow a = \frac{10}{3}$$

$$|AG| = 2a \Rightarrow x = 2a \Rightarrow x = \frac{20}{3} \text{ olur.}$$

Cevap D

TEST - 5

1.

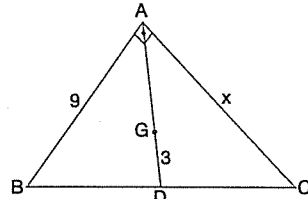


ABC bir dik üçgen
 $[AB] \perp [AC]$
 G, ağırlık merkezi
 $|AC| = 6\sqrt{3}$ cm
 $|AB| = 6$ cm

Yukarıdaki verilere göre, $|AG| = x$ kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

3.

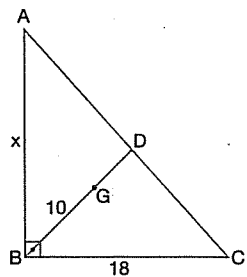


ABC bir dik üçgen
 $[AB] \perp [AC]$
 G, ağırlık merkezi
 $|AB| = 9$ cm
 $|GD| = 3$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

- A) $3\sqrt{3}$ B) $6\sqrt{3}$ C) $9\sqrt{3}$
 D) $12\sqrt{3}$ E) $15\sqrt{3}$

2.

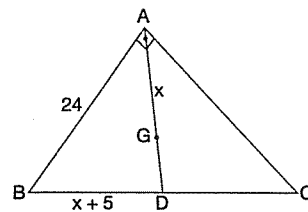


ABC bir dik üçgen
 $[AB] \perp [BC]$
 G, ağırlık merkezi
 $|BC| = 18$ cm
 $|BG| = 10$ cm

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 18 B) 20 C) 22 D) 24 E) 26

4.



ABC bir dik üçgen
 $[AB] \perp [AC]$
 G, ağırlık merkezi
 $|AG| = x$
 $|BD| = x + 5$

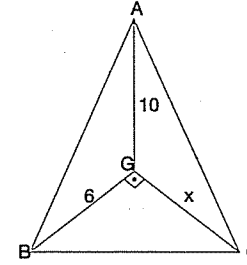
Yukarıdaki verilere göre, $|AC|$ kaç cm dir?

- A) 18 B) 19 C) 20 D) 21 E) 22

1. B 2. D 3. C 4. A

Dik Üçgende Hipotenüse Ait Kenarortay - III

Örnek

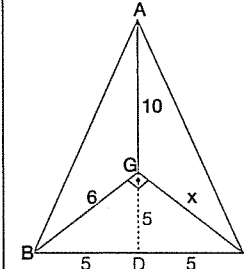


ABC bir üçgen
 G, ağırlık merkezi
 $[BG] \perp [GC]$
 $|AG| = 10$ cm
 $|BG| = 6$ cm

Yukarıdaki verilere göre, $|GC| = x$ kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 16

Çözüm



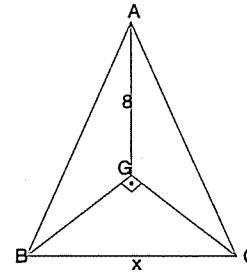
$[AG]$ yi uzatırsak G ağırlık merkezi olduğundan, $[AD]$ kenarortay olur.
 $|BD| = |DC|$
 $|AG| = 10$ cm
 $|GD| = 5$ cm olur.

$m(\widehat{BGC}) = 90^\circ$ ve $|BD| = |DC|$ ise,
 $|BD| = |DC| = |GD| = 5$ cm (Muhteşem üçlü)
 BGC dik üçgeninde,
 $x^2 + 6^2 = 10^2$ $(6 - 8 - 10) \Rightarrow x = 8$ cm olur.

Cevap B

TEST - 6

1.

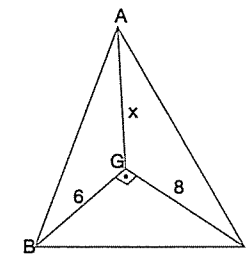


ABC bir üçgen
 G, ağırlık merkezi
 $[BG] \perp [GC]$
 $|AG| = 8$ br

Yukarıdaki verilere göre, $|BC| = x$ kaç br dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

3.

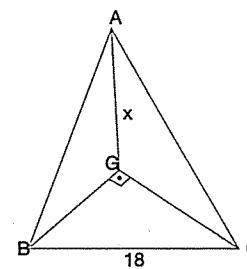


ABC bir üçgen
 G, ağırlık merkezi
 $[BG] \perp [GC]$
 $|GC| = 8$ cm
 $|GB| = 6$ cm

Yukarıdaki verilere göre, $|AG| = x$ kaç cm dir?

- A) 5 B) 8 C) 10 D) 12 E) 15

2.

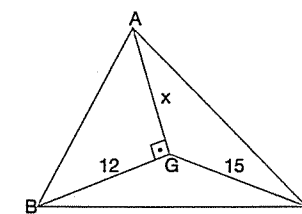


ABC bir üçgen
 G, ağırlık merkezi
 $[BG] \perp [GC]$
 $|BC| = 18$ cm

Yukarıdaki verilere göre, $|AG| = x$ kaç cm dir?

- A) 6 B) 9 C) 12 D) 15 E) 18

4.



ABC bir üçgen
 G, ağırlık merkezi
 $[AG] \perp [BG]$
 $|BG| = 12$ cm
 $|GC| = 15$ cm

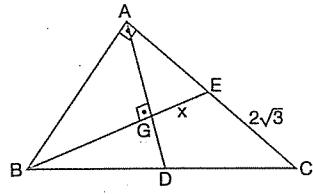
Yukarıdaki verilere göre, $|AG| = x$ kaç cm dir?

- A) 8 B) 9 C) 12 D) 15 E) 17

1. C 2. E 3. C 4. B

Dik Üçgende Hipotenüse Ait Kenarortay - IV

Örnek

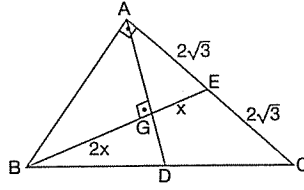


ABC dik üçgen
[AB] ⊥ [AC]
[AD] ⊥ [BE]
G, ağırlık merkezi
|EC| = $2\sqrt{3}$ cm

Yukarıdaki verilene göre, |GE| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm

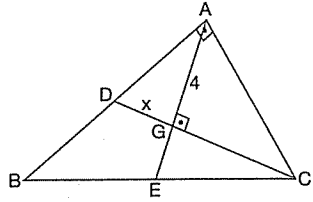


ABE üçgeninde,
 $|AE|^2 = |EG| \cdot |EB|$ (Öklid)
 $(2\sqrt{3})^2 = x \cdot 3x \Rightarrow 12 = 3x^2$
 $\Rightarrow x = 2$ cm olur.

Cevap B

TEST - 7

1.

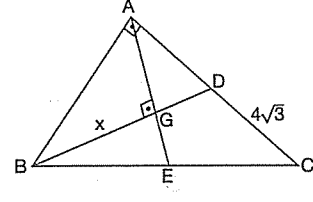


ABC dik üçgen
[AB] ⊥ [AC]
[AE] ⊥ [DC]
G, ağırlık merkezi
|AG| = 4 cm

Yukarıdaki verilene göre, |DG| = x kaç cm dir?

- A) 1 B) $2\sqrt{2}$ C) 3 D) 4 E) $4\sqrt{2}$

3.

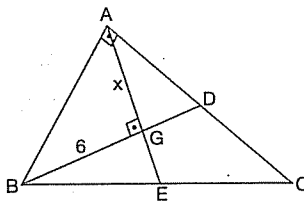


ABC dik üçgen
[AB] ⊥ [AC]
[AE] ⊥ [BD]
G, ağırlık merkezi
|DC| = $4\sqrt{3}$ cm

Yukarıdaki verilene göre, |BG| = x kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

2.

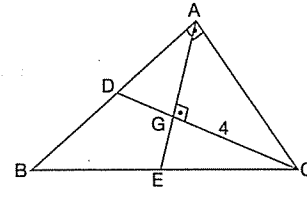


ABC dik üçgen
[AB] ⊥ [AC]
[AE] ⊥ [BD]
G, ağırlık merkezi
|BG| = 6 cm

Yukarıdaki verilene göre, |AG| = x kaç cm dir?

- A) $2\sqrt{3}$ B) 3 C) 4 D) $3\sqrt{2}$ E) 6

4.



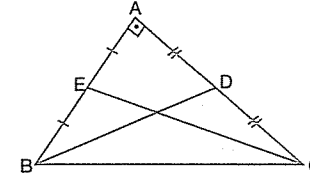
ABC dik üçgen
[AB] ⊥ [AC]
[AE] ⊥ [DC]
G, ağırlık merkezi
|GC| = 4 cm

Yukarıdaki verilene göre, |AB| kaç cm dir?

- A) 8 B) $4\sqrt{3}$ C) 4 D) $2\sqrt{3}$ E) 3

Dik Üçgende Hipotenüse Ait Kenarortay - V

Örnek

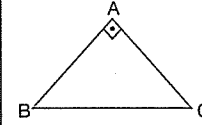


ABC bir dik üçgen
[AB] ⊥ [AC]
[BD] ve [EC] kenarortay

|EC| = $2\sqrt{5}$ cm, |BD| = $3\sqrt{5}$ cm

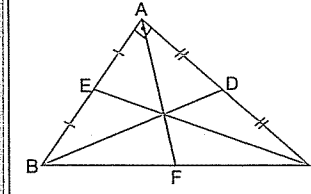
Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) $3\sqrt{13}$ B) $3\sqrt{7}$ C) $2\sqrt{13}$
D) $2\sqrt{7}$ E) $\sqrt{13}$



$$m(\hat{A}) = 90^\circ \Rightarrow 5V_a^2 = V_b^2 + V_c^2$$

Çözüm



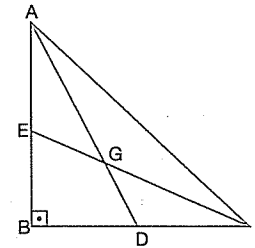
$m(\hat{A}) = 90^\circ$
 $5V_a^2 = V_b^2 + V_c^2$
 $5V_a^2 = (2\sqrt{5})^2 + (3\sqrt{5})^2$
 $5V_a^2 = 20 + 45$
 $5V_a^2 = 65$
 $V_a = \sqrt{13}$ cm olur.

|BC| = $2V_a \Rightarrow |BC| = 2\sqrt{13}$ cm olur.

Cevap C

TEST - 8

1.

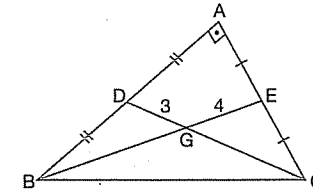


ABC dik üçgen
[AB] ⊥ [BC]
G, ağırlık merkezi
|AD| = $2\sqrt{3}$ cm
|EC| = $3\sqrt{2}$ cm

Yukarıdaki verilene göre, V_b kaç cm dir?

- A) $\sqrt{2}$ B) $\sqrt{3}$ C) $\sqrt{5}$ D) $\sqrt{6}$ E) $\sqrt{7}$

3.

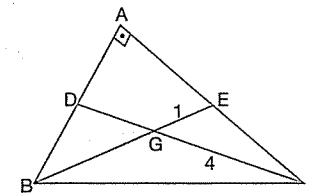


ABC dik üçgen
[AB] ⊥ [AC]
|AE| = |EC|
|AD| = |DB|
|DG| = 3 br
|GE| = 4 br

Yukarıdaki verilene göre, |BC| kaç br dir?

- A) $2\sqrt{3}$ B) $3\sqrt{5}$ C) $4\sqrt{5}$
D) $5\sqrt{5}$ E) $6\sqrt{5}$

2.

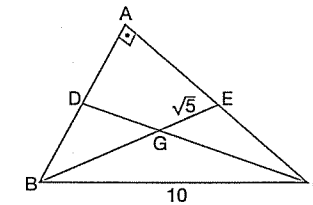


ABC dik üçgen
[AB] ⊥ [AC]
G, ağırlık merkezi
|GE| = 1 cm
|GC| = 4 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

4.



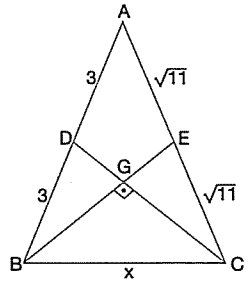
ABC dik üçgen
G, ağırlık merkezi
|BC| = 10 cm
|GE| = $\sqrt{5}$ cm

Yukarıdaki verilene göre, V_c kaç cm dir?

- A) $4\sqrt{5}$ B) $5\sqrt{5}$ C) $6\sqrt{5}$
D) $7\sqrt{5}$ E) $8\sqrt{5}$

Kenarortayların Dik Kesişmesi

Örnek

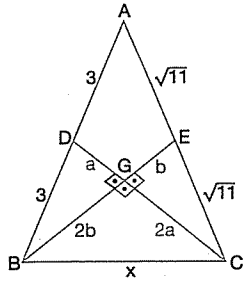


ABC bir üçgen
[BE] ⊥ [DC]
|AD| = |DB| = 3 cm
|AE| = |EC| = $\sqrt{11}$ cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



BDG üçgeninde
 $a^2 + (2b)^2 = 3^2$
 $a^2 + 4b^2 = 9 \dots I$
EGC üçgeninde
 $(2a)^2 + b^2 = (\sqrt{11})^2$
 $4a^2 + b^2 = 11 \dots II$

$$\begin{aligned} a^2 + 4b^2 &= 9 \\ + 4a^2 + b^2 &= 11 \\ \hline 5a^2 + 5b^2 &= 20 \end{aligned} \Rightarrow a^2 + b^2 = 4$$

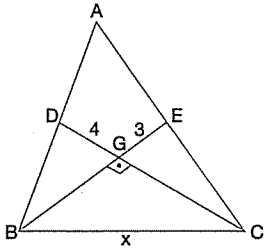
$$5a^2 + 5b^2 = 20$$

BGC üçgeninde, $|BC|^2 = (2a)^2 + (2b)^2$
 $|BC|^2 = 4a^2 + 4b^2 \Rightarrow |BC|^2 = 4(a^2 + b^2) = 16$
 $\Rightarrow |BC| = 4$ cm olur.

Cevap D

TEST - 9

1.

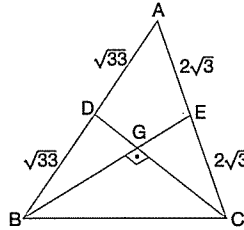


ABC bir üçgen
G, ağırlık merkezi
[BE] ⊥ [DC]
|DG| = 4 cm
|GE| = 3 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 7 B) 8 C) 9 D) 10 E) 11

3.

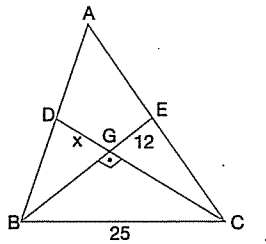


ABC bir üçgen
G, ağırlık merkezi
[BE] ⊥ [DC]
|AD| = |DB| = $\sqrt{33}$ cm
|AE| = |EC| = $2\sqrt{3}$ cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

2.

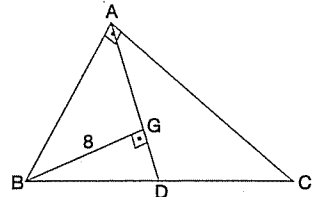


ABC bir üçgen
G, ağırlık merkezi
[BE] ⊥ [DC]
|GE| = 12 cm
|BC| = 25 cm

Yukarıdaki verilere göre, |DG| = x kaç cm dir?

- A) 3 B) 3,5 C) 4 D) 4,5 E) 5

4.



ABC dik üçgen
G, ağırlık merkezi
[BG] ⊥ [AD]
|BG| = 8 cm

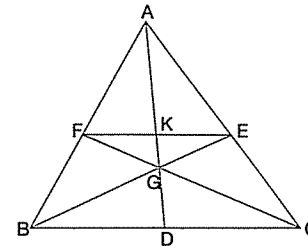
Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) $8\sqrt{2}$ B) $9\sqrt{2}$ C) $10\sqrt{2}$
D) $11\sqrt{2}$ E) $12\sqrt{2}$

1. D 2. B 3. C 4. E

3 - 1 - 2 Kuralı

Örnek

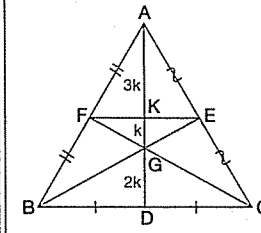


ABC bir üçgen
G, ağırlık merkezi

Yukarıdaki verilere göre, $\frac{|AD| + |GD|}{|AK| + |KG|}$ oranı kaçtır?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



G ağırlık merkezi olmak üzere,
|KG| = k
|GD| = 2k
|AK| = 3k

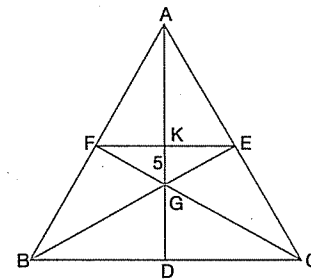
Kurala göre, istenilen ifadeleri yerleştirelim.

$$\frac{|AD| + |GD|}{|AK| + |KG|} = \frac{6k + 2k}{3k + k} = \frac{8k}{4k} = 2 \text{ olur.}$$

Cevap B

TEST - 10

1.

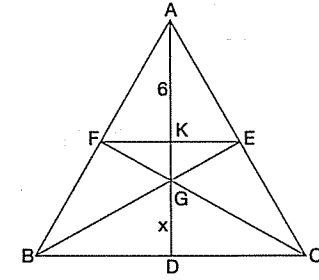


ABC bir üçgen
G, ağırlık merkezi
|KG| = 5 br

Yukarıdaki verilere göre, |AD| kaç br dir?

- A) 30 B) 26 C) 22 D) 18 E) 16

3.

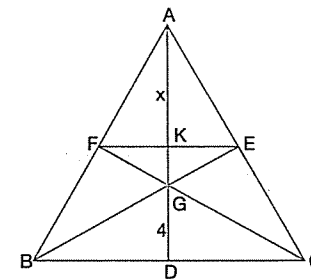


ABC bir üçgen
E, F, D bulundukları kenarın orta noktaları,
|AK| = 6 cm

Yukarıdaki verilere göre, |GD| = x kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

2.

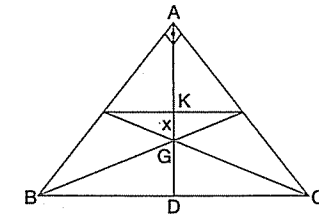


ABC bir üçgen
G, ağırlık merkezi
|GD| = 4 cm

Yukarıdaki verilere göre, |AK| = x kaç cm dir?

- A) 1 B) 2 C) 4 D) 6 E) 8

4.



ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
|BC| = 36 cm

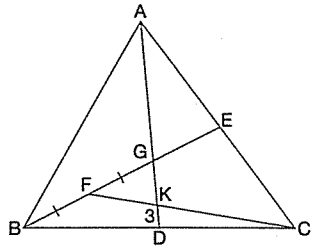
Yukarıdaki verilere göre, |KG| = x kaç cm dir?

- A) 12 B) 9 C) 7 D) 5 E) 3

1. A 2. D 3. B 4. E

İç İçe Ağırlık Merkezi

Örnek



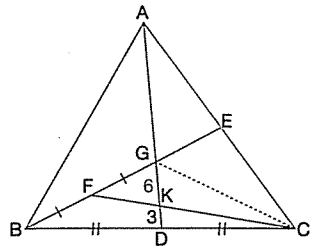
ABC bir üçgen
G, ağırlık merkezi
 $|BF| = |FG|$
 $|KD| = 3$ cm

Yukarıdaki verilene göre, $|AD|$ kaç cm dir?

- A) 27 B) 24 C) 21 D) 18 E) 15



Çözüm



$[GC]$ yi çizelim.
G, ağırlık merkezi olduğundan,
 $|BD| = |DC|$ dir.
 $|BD| = |DC|$ ve
 $|BF| = |FG|$

K, BGC üçgeninin ağırlık merkezidir.

Buna göre, $|KG| = 2 \cdot |KD| = 6$ cm

G, ABC üçgeninin ağırlık merkezi olduğundan

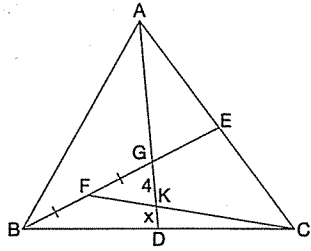
$|AG| = 2 \cdot |GD| = 2 \cdot 9 = 18$ cm dir.

$|AD| = |AG| + |GD| \Rightarrow |AD| = 18 + 9 = 27$ cm olur.

Cevap A

TEST - 11

1.

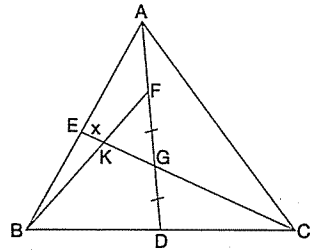


ABC bir üçgen
G, ağırlık merkezi
 $|BF| = |FG|$
 $|GK| = 4$ cm

Yukarıdaki verilene göre, $|KD| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.

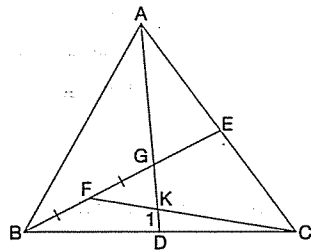


ABC bir üçgen
G, ağırlık merkezi
 $|FG| = |GD|$
 $|EC| = 18$ cm

Yukarıdaki verilene göre, $|EK| = x$ kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

2.

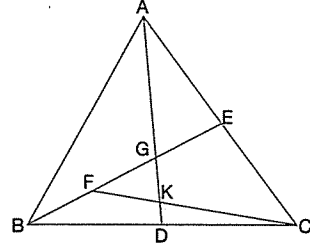


ABC bir üçgen
G, ağırlık merkezi
 $|BF| = |FG|$
 $|KD| = 1$ cm

Yukarıdaki verilene göre, $|AD|$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

4.



ABC bir üçgen
G, ağırlık merkezi
 $|BF| = |GE|$
 $|KC| = 8$ br

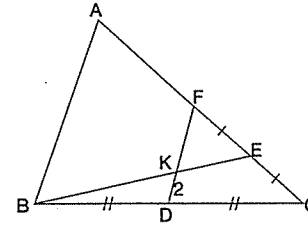
Yukarıdaki verilene göre, $|FC|$ kaç br dir?

- A) 8 B) 6 C) 10 D) 12 E) 14

1. A 2. E 3. D 4. D

Orta Taban - Kenarortay

Örnek



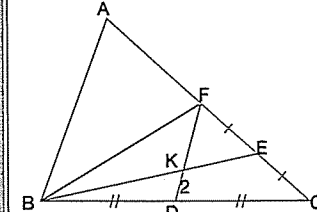
ABC bir üçgen
 $[FD]$ orta taban
 $|FE| = |EC|$
 $|BD| = |DC|$
 $|KD| = 2$ cm

Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16



Çözüm



$[BF]$ yi çizelim.
BCF üçgeninde
 $|FE| = |EC|$ ve
 $|BD| = |DC|$
K ağırlık merkezidir.

$|KD| = 2 \Rightarrow |KF| = 4$ olur.

$|FD| = 2 + 4 = 6$ cm olur.

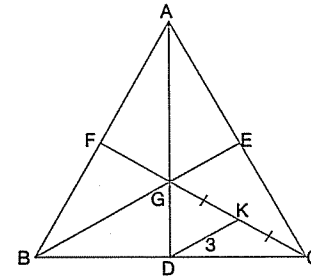
$[FD]$ orta taban olduğundan, $|FD| = \frac{|AB|}{2}$ dir.

$\frac{|AB|}{2} = 6 \Rightarrow |AB| = 12$ cm olur.

Cevap C

TEST - 12

1.

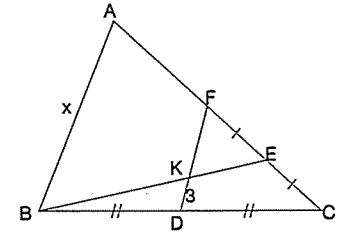


ABC bir üçgen
G, ağırlık merkezi
 $|GK| = |KC|$
 $|DK| = 3$ cm

Yukarıdaki verilene göre, $|GE|$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.

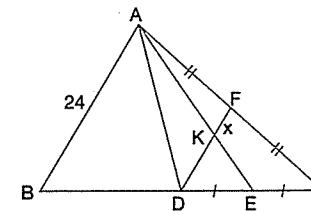


ABC bir üçgen
 $[FD]$ orta taban
 $|FE| = |EC|$
 $|BD| = |DC|$
 $|KD| = 3$ br

Yukarıdaki verilene göre, $|AB| = x$ kaç br dir?

- A) 6 B) 12 C) 15 D) 18 E) 21

2.

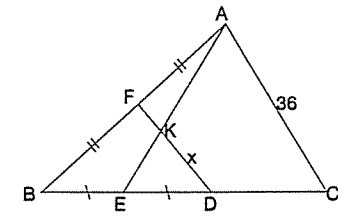


ABC bir üçgen
 $|BD| = 2|DE|$
 $|AF| = |FC|$
 $|DE| = |EC|$
 $|AB| = 24$ cm

Yukarıdaki verilene göre, $|FK| = x$ kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

4.



ABC bir üçgen
 $[FD]$ orta taban
 $|AF| = |FB|$
 $|BE| = |ED|$
 $|AC| = 36$ cm

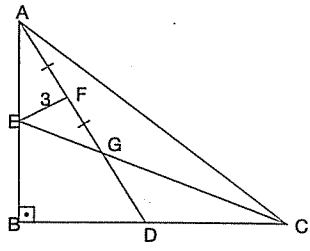
Yukarıdaki verilene göre, $|KD| = x$ kaç cm dir?

- A) 13 B) 12 C) 11 D) 10 E) 9

1. B 2. D 3. D 4. B

Orta Taban - Muhteşem Üçlü

Örnek

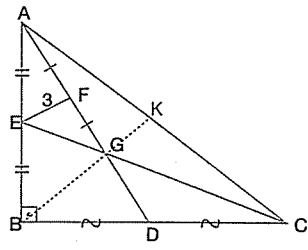


ABC bir dik
üçgen
G, ağırlık merkezi
[AB] ⊥ [BC]
|AF| = |FG|
|EF| = 3 cm

Yukarıdaki verilene göre, |AC| kaç cm dir?

- A) 18 B) 15 C) 12 D) 9 E) 6

Çözüm



G, ağırlık merkezi
olduğundan,
|AE| = |EB| ve
|BD| = |DC| dir.
[BK] kenarortayı
çizelim.
|AE| = |EB| ve

|AF| = |FG| olduğundan

[EF] ABG üçgeninde orta taban olur.

Buna göre, $|EF| = \frac{|BG|}{2} \Rightarrow 3 = \frac{|BG|}{2}$

|BG| = 6 cm olur.

|BG| = 6 cm $\Rightarrow$ |GK| = 3 cm olur.

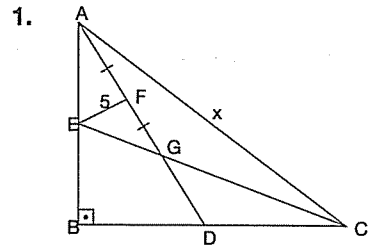
|BK| = 6 + 3 = 9 cm olur.

|BK| = |AK| = |KC| = 9 (Muhteşem üçlü)

|AC| = 9 + 9 = 18 cm olur.

Cevap A

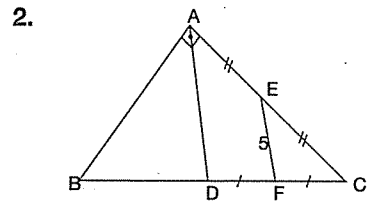
TEST - 13



ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [BC]
|AF| = |FG|
|EF| = 5 cm

Yukarıdaki verilene göre, |AC| = x kaç cm dir?

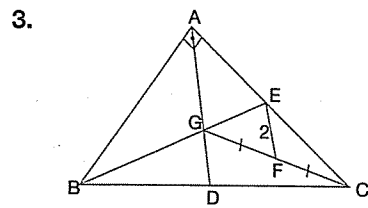
- A) 18 B) 21 C) 25 D) 30 E) 35



ABC dik üçgen
[AB] ⊥ [AC]
BD	= 2	FC
AE	=	EC
DF	=	FC
EF	= 5 br	

Yukarıdaki verilene göre, |BC| kaç br dir?

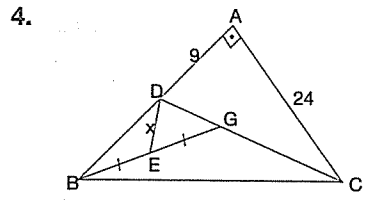
- A) 10 B) 12 C) 14 D) 18 E) 20



ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
|GF| = |FC|
|EF| = 2 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16



ABC dik üçgen
[AB] ⊥ [AC]
G, ağırlık merkezi
|BE| = |EG|
|AC| = 24 cm
|AD| = 9 cm

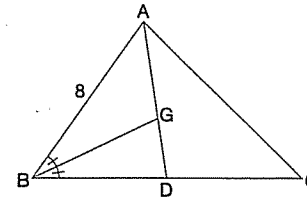
Yukarıdaki verilene göre, |DE| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. D 2. E 3. C 4. E

Açıortay - Kenarortay

Örnek

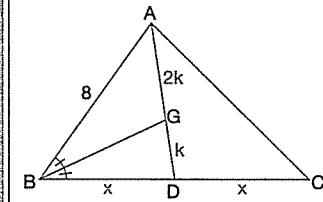


ABC bir üçgen
G, ağırlık merkezi
[BG] açıortay
|AB| = 8 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 10 B) 8 C) 6 D) 4 E) 2

Çözüm



G, ağırlık merkezi ol-
duğundan
|AG| = 2|GD| ve
|BD| = |DC| dir.

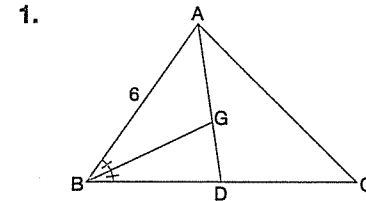
[BG] açıortay olduğundan,

$$\frac{x}{k} = \frac{8}{2k} \Rightarrow x = 4 \text{ cm}$$

|BC| = 2x = 2.4 $\Rightarrow$ |BC| = 8 cm olur.

Cevap B

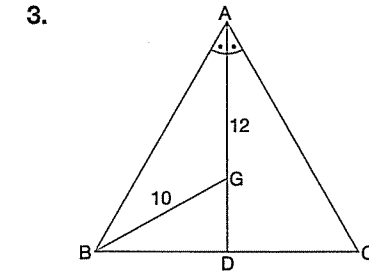
TEST - 14



ABC bir üçgen
G, ağırlık merkezi
[BG] açıortay
|AB| = 6 br

Yukarıdaki verilene göre, |BC| kaç br dir?

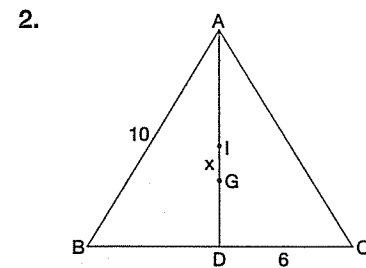
- A) 4 B) 6 C) 8 D) 10 E) 12



ABC bir üçgen
G, ağırlık merkezi
[AD] açıortay
|AG| = 12 cm
|BG| = 10 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

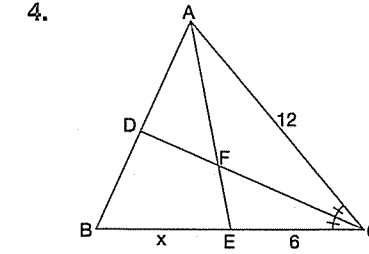
- A) 10 B) 12 C) 14 D) 16 E) 18



ABC bir üçgen
G, ağırlık merkezi
I, iç teğet çember-
inin merkezi
|AD| = 10 cm
|DC| = 6 cm

Yukarıdaki verilene göre, |IG| = x kaç cm dir?

- A) $\frac{3}{8}$ B) $\frac{3}{7}$ C) $\frac{2}{5}$ D) $\frac{1}{3}$ E) $\frac{1}{5}$



ABC bir üçgen
[DC] açıortay
2|DF| = |FC|
|AC| = 12 cm
|EC| = 6 cm

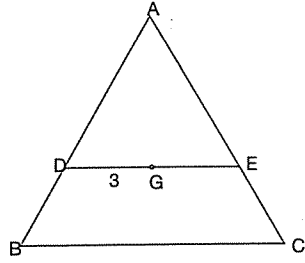
Yukarıdaki verilene göre, |BE| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

1. B 2. D 3. D 4. C

Ağırlık Merkezinden Çizilen Paralel

Örnek



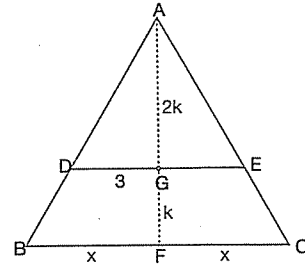
ABC bir üçgen
G, ağırlık
merkezi
[DE] // [BC]
|DG| = 3 cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) 9 B) 8 C) 7 D) 6 E) 5



Çözüm



[AF] kenarortayı çizilirse
G, ağırlık merkezi olduğundan
|AG| = 2|GF|
Yani |GF| = k ve
|AG| = 2k olur.

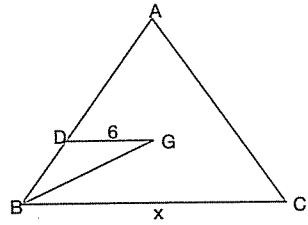
$$\widehat{ADG} \sim \widehat{ABF} \Rightarrow \frac{3}{x} = \frac{2k}{3k} \Rightarrow x = \frac{9}{2} \text{ olur.}$$

$$|BC| = 2x \Rightarrow |BC| = 2 \cdot \frac{9}{2} \Rightarrow |BC| = 9 \text{ cm olur.}$$

Cevap A

TEST - 15

1.

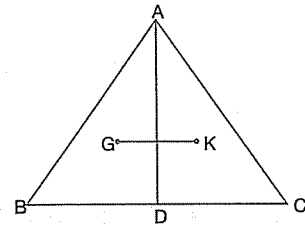


ABC bir üçgen
G, ağırlık merkezi
[DG] // [BC]
|DG| = 6 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 12 B) 14 C) 16 D) 18 E) 20

3.



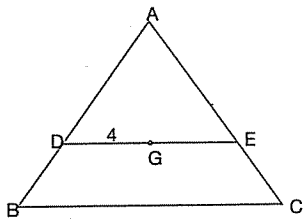
ABC bir üçgen
G ve K sırasıyla ABD ve ADC üçgenlerinin ağırlık merkezi
|GK| = 10 cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) 34 B) 30 C) 26 D) 22 E) 18

sonuç yayınları

2.

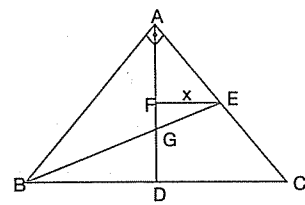


ABC bir üçgen
G, ağırlık merkezi
[DE] // [BC]
|DG| = 4 cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) 12 B) 11 C) 10 D) 9 E) 8

4.



ABC bir dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[FE] // [BC]
|BC| = 24 cm

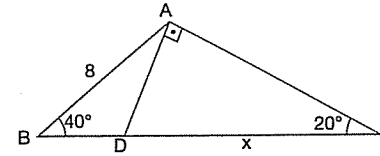
Yukarıdaki verilere göre, |FE| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

1. D 2. A 3. B 4. C

Muhteşem Üçlü

Örnek



ABC bir üçgen

[AD] ⊥ [AC]

$$m(\widehat{ABC}) = 40^\circ, m(\widehat{ACB}) = 20^\circ$$

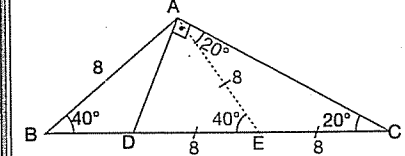
$$|AB| = 8 \text{ cm}$$

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) 16 B) 14 C) 12 D) 10 E) 8



Çözüm



ADC üçgeninin hipotenüse ait kenarortayı çizilirse,

$$|AE| = |DE| = |EC| \text{ olur.}$$

Buna göre, AEC üçgeninde

$$|AE| = |EC| \Rightarrow m(\widehat{EAC}) = m(\widehat{ECA}) = 20^\circ \text{ olur.}$$

$$m(\widehat{BEA}) = m(\widehat{EAC}) + m(\widehat{ECA}) = 20^\circ + 20^\circ = 40^\circ \text{ olur.}$$

Buna göre, ABE ikizkenar üçgen olur.

$$m(\widehat{ABC}) = m(\widehat{AEB}) = 40^\circ \Rightarrow |AB| = |AE| = 8 \text{ olur.}$$

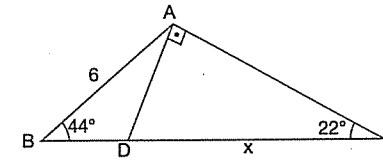
$$|AE| = |DE| = |EC| = 8 \text{ olur.}$$

$$|DC| = x = 8 + 8 = 16 \text{ cm olur.}$$

Cevap A

TEST - 16

1.



ABC bir üçgen, [AD] ⊥ [AC]

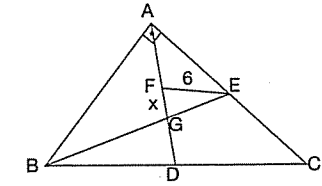
$$m(\widehat{ABC}) = 44^\circ, m(\widehat{ACB}) = 22^\circ$$

$$|AB| = 6 \text{ br}$$

Yukarıdaki verilere göre, |DC| = x kaç br dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

3.



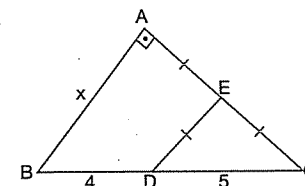
ABC bir dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[FE] // [BC]
|FE| = 6 cm

Yukarıdaki verilere göre, |FG| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

sonuç yayınları

2.

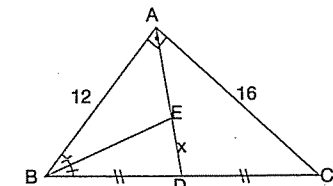


ABC bir dik üçgen
[AB] ⊥ [AC]
|AE| = |EC| = |DE|
|DC| = 5 cm
|BD| = 4 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 9 B) 8 C) 7 D) 6 E) 5

4.



ABC bir dik üçgen
[AB] ⊥ [AC]
[BE] açıortay
|BD| = |DC|
|AC| = 16 cm
|AB| = 12 cm

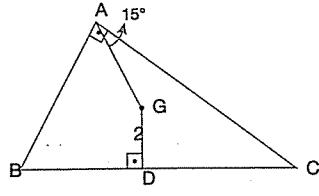
Yukarıdaki verilere göre, |ED| = x kaç cm dir?

- A) $\frac{50}{11}$ B) $\frac{53}{11}$ C) $\frac{57}{11}$ D) $\frac{59}{11}$ E) $\frac{63}{11}$

1. B 2. D 3. E 4. A

Muhteşem Üçlü

Örnek



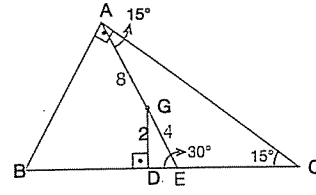
ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[GD] ⊥ [BC]
 $m(\widehat{CAG}) = 15^\circ$
|GD| = 2 cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 18 B) 20 C) 22 D) 24 E) 26



Çözüm



ABC üçgeninde G,
ağırlık merkezi
olduğundan [AG]
yi uzatırsak [AE]
kenarortay olur.
 $m(\widehat{BAC}) = 90^\circ$ ve

[AE] kenarortay olduğundan

|AE| = |BE| = |EC| olur.

|AE| = |EC| $\Rightarrow m(\widehat{EAC}) = m(\widehat{ECA}) = 15^\circ$

$m(\widehat{BEA}) = m(\widehat{EAC}) + m(\widehat{ECA})$

$m(\widehat{BEA}) = 15^\circ + 15^\circ = 30^\circ$ olur.

$m(\widehat{DEG}) = 30^\circ \Rightarrow |GE| = 2|GD| = 4$ cm olur.

G, ağırlık merkezi ise, |AG| = 2|GE| = 8 cm olur.

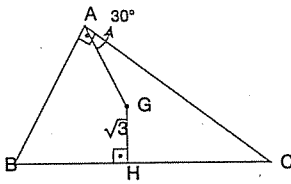
|AE| = |AG| + |GE| = 12 cm olur.

Buna göre, |BC| = 2.12 = 24 cm olur.

Cevap D

TEST - 17

1.

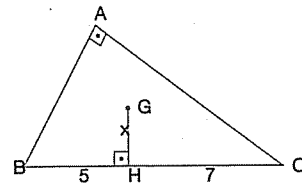


ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[GH] ⊥ [BC]
 $m(\widehat{CAG}) = 30^\circ$
|GH| = $\sqrt{3}$ cm

Yukarıdaki verilene göre, |BC| kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16

3.



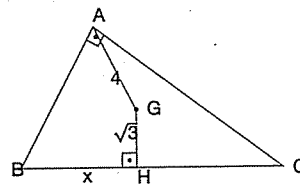
ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[GH] ⊥ [BC]

|HC| = 7 cm, |BH| = 5 cm

Yukarıdaki verilene göre, |GH| = x kaç cm dir?

- A) $\sqrt{3}$ B) $\sqrt{5}$ C) $2\sqrt{3}$
D) $2\sqrt{5}$ E) $3\sqrt{3}$

2.

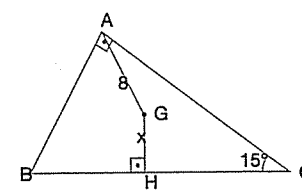


ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[GH] ⊥ [BC]
|AG| = 4 cm
|GH| = $\sqrt{3}$ cm

Yukarıdaki verilene göre, |BH| = x kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

4.



ABC dik üçgen
G, ağırlık merkezi
[AB] ⊥ [AC]
[GH] ⊥ [BC]

$m(\widehat{ACB}) = 15^\circ$, |AG| = 8 cm

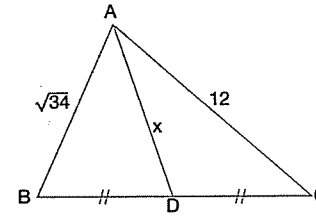
Yukarıdaki verilene göre, |GH| = x kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

1. C 2. A 3. A 4. D

Kenarortay Uzunluğu - I

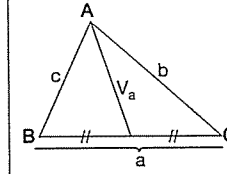
Örnek



ABC bir üçgen
|BD| = |DC|
|AC| = 12 cm
|BC| = 10 cm
|AB| = $\sqrt{34}$ cm

Yukarıdaki verilene göre, |AD| = x kaç cm dir?

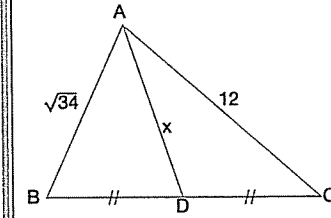
- A) 4 B) 6 C) 8 D) 10 E) 12



$$2V_a^2 + \frac{a^2}{2} = b^2 + c^2$$



Çözüm



$$2x^2 + \frac{10^2}{2} = 12^2 + (\sqrt{34})^2$$

$$2x^2 + 50 = 144 + 34 \Rightarrow 2x^2 = 128$$

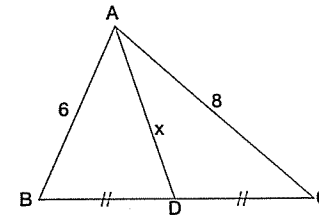
$$\Rightarrow x^2 = 64$$

$$\Rightarrow x = 8 \text{ cm olur.}$$

Cevap C

TEST - 18

1.

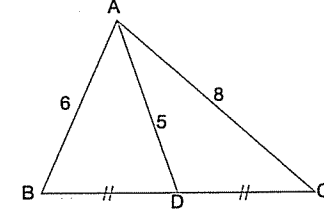


ABC bir üçgen
|BD| = |DC|
|AC| = 8 br
|AB| = 6 br
|BC| = 4 br

Yukarıdaki verilene göre, |AD| = x kaç br dir?

- A) $\sqrt{41}$ B) $\sqrt{43}$ C) $\sqrt{46}$ D) $\sqrt{47}$ E) $\sqrt{51}$

3.

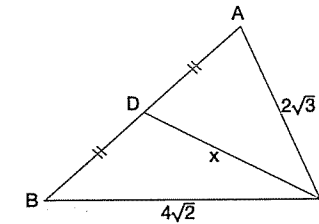


ABC bir üçgen
|BD| = |DC|
|AC| = 8 br
|AB| = 6 br
|AD| = 5 br

Yukarıdaki verilene göre, |BC| = x kaç br dir?

- A) 7 B) 8 C) 9 D) 10 E) 11

2.

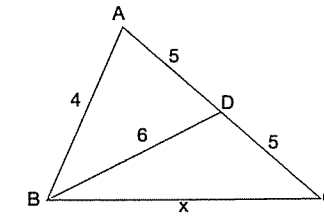


ABC bir üçgen
|AD| = |DB|
|BC| = $4\sqrt{2}$ cm
|AC| = $2\sqrt{3}$ cm
|AB| = 4 cm

Yukarıdaki verilene göre, |DC| = x kaç cm dir?

- A) $\sqrt{3}$ B) $2\sqrt{3}$ C) $3\sqrt{2}$ D) $3\sqrt{3}$ E) $4\sqrt{3}$

4.



ABC bir üçgen
|BD| = 6 cm
|AD| = 5 cm
|DC| = 5 cm
|AB| = 4 cm

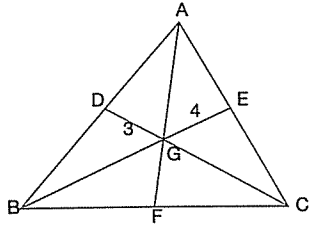
Yukarıdaki verilene göre, |BC| = x kaç br dir?

- A) $\sqrt{97}$ B) $\sqrt{101}$ C) $\sqrt{103}$
D) $\sqrt{105}$ E) $\sqrt{106}$

1. C 2. C 3. D 4. E

Kenarortay Uzunluğu - II

Örnek



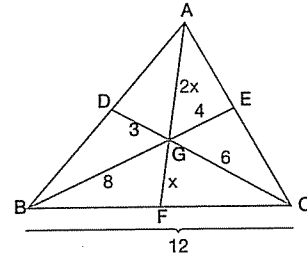
ABC bir üçgen
G, ağırlık
merkezi
 $|DG| = 3$ cm
 $|GE| = 4$ cm
 $|BC| = 12$ cm

Yukarıdaki verilene göre, $|AG|$ kaç cm dir?

- A) $\sqrt{5}$ B) $\sqrt{7}$ C) $\sqrt{14}$
D) $2\sqrt{5}$ E) $2\sqrt{14}$



Çözüm



G, ağırlık merkezi ol-
duğundan
 $|BG| = 2|GE|$
 $= 2 \cdot 4 = 8$ cm
 $|GC| = 2|DG|$
 $= 2 \cdot 3 = 6$ cm

$|AG| = 2|GF| = 2 \cdot x = 2x$ tir.

BGC üçgeninde $|GD| = x$ kenarortay uzunluğu olup,

$$2x^2 + \frac{12^2}{2} = 8^2 + 6^2$$

$$\Rightarrow 2x^2 + \frac{144}{2} = 64 + 36 \Rightarrow 2x^2 = 28$$

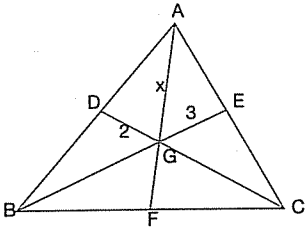
$$\Rightarrow x^2 = 14 \Rightarrow x = \sqrt{14} \text{ cm olur.}$$

Buna göre, $|AG| = 2\sqrt{14}$ cm olur.

Cevap E

TEST - 19

1.

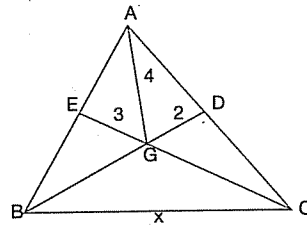


ABC bir üçgen
G, ağırlık
merkezi
 $|GE| = 3$ cm
 $|DG| = 2$ cm
 $|BC| = 8$ cm

Yukarıdaki verilene göre, $|AG| = x$ kaç cm dir?

- A) $\sqrt{10}$ B) $2\sqrt{5}$ C) $2\sqrt{10}$
D) $3\sqrt{5}$ E) $3\sqrt{10}$

2.

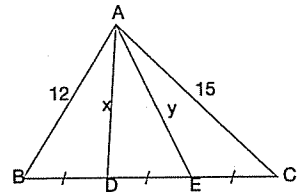


ABC bir üçgen
 $[BD]$ ve $[EC]$
kenarortay
 $|GD| = 2$ br
 $|EG| = 3$ br
 $|AG| = 4$ br

Yukarıdaki verilene göre, $|BC| = x$ kaç br dir?

- A) 3 B) $2\sqrt{22}$ C) 8 D) $3\sqrt{13}$ E) 7

3.

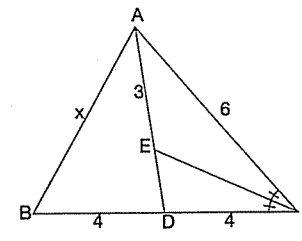


ABC bir üçgen
 $|BD| = |DE| = |EC|$
 $|AB| = 12$ cm
 $|AC| = 15$ cm
 $|AE| = y$
 $|AD| = x$

Yukarıdaki verilene göre, $y^2 - x^2$ kaç cm dir?

- A) 18 B) 21 C) 24 D) 27 E) 30

4.



ABC bir üçgen
 $[EC]$ açıortay
 $|AC| = 6$ cm
 $|BD| = 4$ cm
 $|DC| = 4$ cm
 $|AE| = 3$ cm

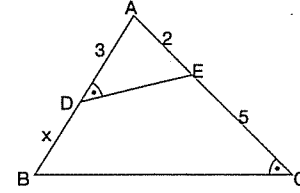
Yukarıdaki verilene göre, $|AB| = x$ kaç cm dir?

- A) $\sqrt{37}$ B) $\sqrt{39}$ C) $\sqrt{41}$ D) $\sqrt{43}$ E) $\sqrt{46}$

1. C 2. B 3. D 4. E

Açı - Açı Benzerliği - I

Örnek

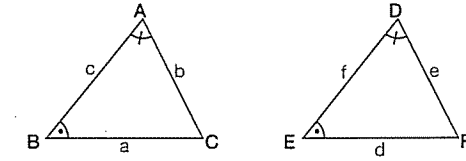


ABC bir üçgen
 $m(\widehat{ADE}) = m(\widehat{ACB})$
 $|EC| = 5$ cm
 $|AD| = 3$ cm
 $|AE| = 2$ cm

Yukarıdaki verilene göre, $|DB| = x$ kaç cm dir?

- A) 1 B) $\frac{5}{3}$ C) 2 D) $\frac{7}{3}$ E) 3

A. A. A. Benzerlik Teoremi : İki üçgenin açıları eş ise
bu iki üçgen benzerdir.

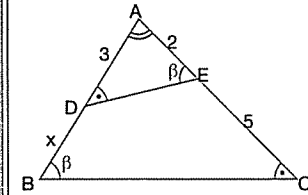


Çözüm

$$\left. \begin{array}{l} m(\widehat{A}) = m(\widehat{D}) \\ m(\widehat{B}) = m(\widehat{E}) \end{array} \right\} \Rightarrow \widehat{ABC} \sim \widehat{DEF}$$

İki açıları eş olduğundan, üçüncü açılarda eş olmak
zorundadır. Dolayısıyla bu iki üçgen benzerdir.

$$m(\widehat{C}) = m(\widehat{F}) \text{ ve } \frac{a}{d} = \frac{b}{e} = \frac{c}{f}$$



$m(\widehat{ADE}) = m(\widehat{BCA})$ ve
A ortak açı ise,
 $m(\widehat{AED}) = m(\widehat{ABC})$
olur.

Buna göre, A. A. A. Benzerlik Teoreminden,

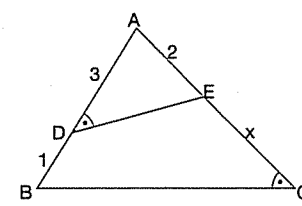
$$\widehat{ABC} \sim \widehat{AED} \Rightarrow \frac{2}{x+3} = \frac{3}{7}$$

$$3x + 9 = 14 \Rightarrow x = \frac{5}{3} \text{ cm olur.}$$

Cevap B

TEST - 1

1.

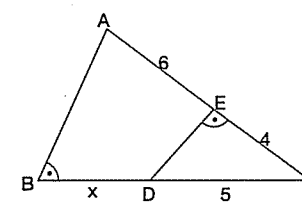


ABC bir üçgen
 $m(\widehat{ADE}) = m(\widehat{ACB})$
 $|AD| = 3$ cm
 $|AE| = 2$ cm
 $|DB| = 1$ cm

Yukarıdaki verilene göre, $|EC| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

2.

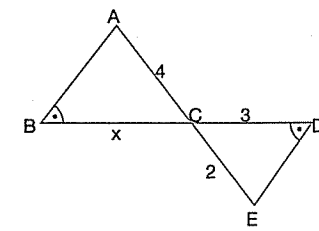


ABC bir üçgen
 $m(\widehat{ABC}) = m(\widehat{DEC})$
 $|AE| = 6$ cm
 $|DC| = 5$ cm
 $|EC| = 4$ cm

Yukarıdaki verilene göre, $|BD| = x$ kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

3.

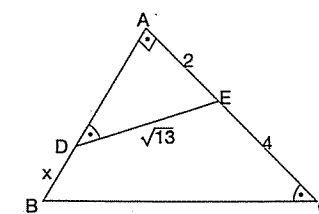


B, C, D ve
A, C, E doğrusal
 $m(\widehat{ABD}) = m(\widehat{BDE})$
 $|AC| = 4$ cm
 $|CD| = 3$ cm
 $|CE| = 2$ cm

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 9 B) 8 C) 7 D) 6 E) 5

4.



ABC dik üçgen
 $[AB] \perp [AC]$
 $m(\widehat{ADE}) = m(\widehat{ACB})$
 $|EC| = 4$ cm
 $|AE| = 2$ cm
 $|DE| = \sqrt{13}$ cm

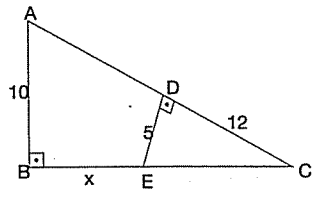
Yukarıdaki verilene göre, $|DB| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. C 2. E 3. D 4. A

Açı - Açı Benzerliği - II

Örnek



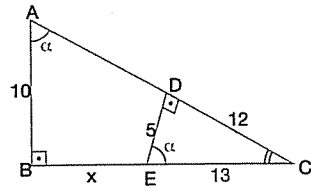
ABC bir dik
üçgen
[AB] ⊥ [BC]
[DE] ⊥ [AC]
|DC| = 12 cm

|AB| = 10 cm, |DE| = 5 cm

Yukarıdaki verilere göre, |BE| = x kaç cm dir?

- A) 9 B) 10 C) 11 D) 12 E) 13

Çözüm



EDC üçgeninde
 $|EC|^2 = 5^2 + 12^2$
(Pisagor)
 $|EC| = 13 (5 - 12 - 13)$

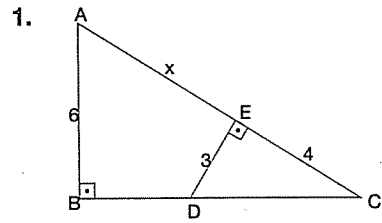
$$\widehat{ABC} \sim \widehat{EDC} \Rightarrow \frac{12}{x+13} = \frac{5}{10}$$

Benzer üçgenlerde eşit olan açıların karşılardaki kenarların oranı birbirine eşittir.

$$x = 11 \text{ cm}$$

Cevap C

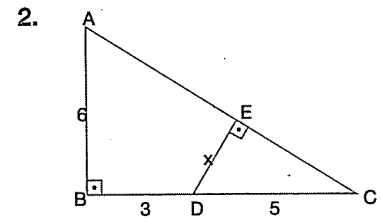
TEST - 2



ABC dik üçgen
[AB] ⊥ [BC]
[DE] ⊥ [AC]
|AB| = 6 cm
|EC| = 4 cm
|DE| = 3 cm

Yukarıdaki verilere göre, |AE| = x kaç cm dir?

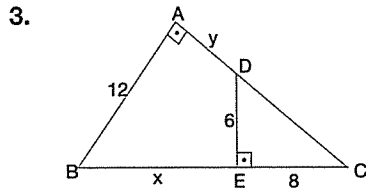
- A) 4 B) 5 C) 6 D) 7 E) 8



ABC dik üçgen
[AB] ⊥ [BC]
[DE] ⊥ [AC]
|AB| = 6 br
|DC| = 5 br
|BD| = 3 br

Yukarıdaki verilere göre, |DE| = x kaç br dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

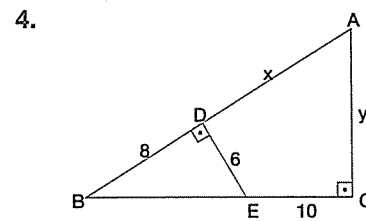


ABC dik üçgen
[AB] ⊥ [AC]
[DE] ⊥ [BC]
|AB| = 12 cm
|EC| = 8 cm

|DE| = 6 cm, |BE| = x, |AD| = y

Yukarıdaki verilere göre, x + y kaç cm dir?

- A) 12 B) 14 C) 16 D) 18 E) 20



ABC dik üçgen
[AB] ⊥ [BC]
[DE] ⊥ [AB]
|EC| = 10 br
|DB| = 8 br

|DE| = 6 br, |AD| = x, |AC| = y

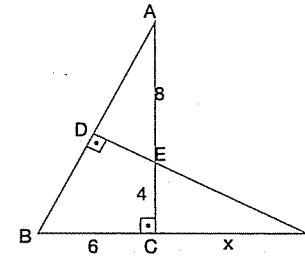
Yukarıdaki verilere göre, x + y kaç br dir?

- A) 28 B) 30 C) 32 D) 34 E) 36

1. C 2. A 3. D 4. C

Açı - Açı Benzerliği - III

Örnek

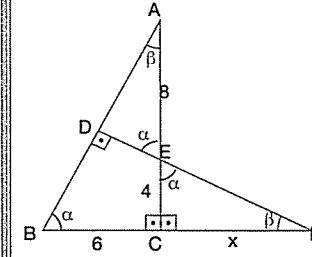


ABC ve BDF
bir dik üçgen
[AC] ⊥ [BF]
[DF] ⊥ [AB]
|AE| = 8 cm
|BC| = 6 cm
|EC| = 4 cm

Yukarıdaki verilere göre, |CF| = x kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

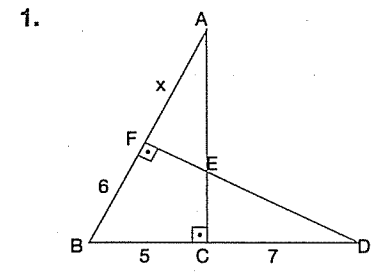
Çözüm



$$\begin{aligned} \widehat{ABC} &\sim \widehat{FEC} \\ \Rightarrow \frac{|BC|}{|EC|} &= \frac{|AC|}{|FC|} \\ \Rightarrow \frac{6}{4} &= \frac{12}{x} \\ \Rightarrow x &= 8 \text{ cm olur.} \end{aligned}$$

Cevap C

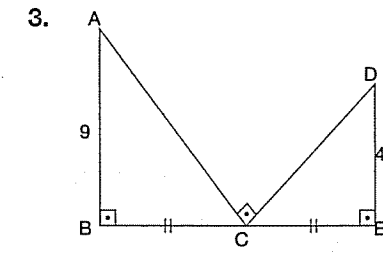
TEST - 3



ABC ve BDF
dik üçgen
[AC] ⊥ [BD]
[FD] ⊥ [AB]
|CD| = 7 cm
|BF| = 6 cm
|BC| = 5 cm

Yukarıdaki verilere göre, |AF| = x kaç cm dir?

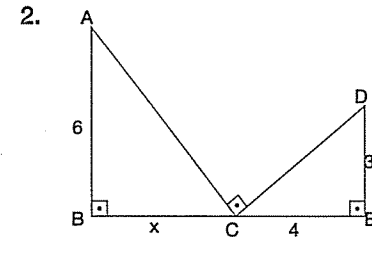
- A) 4 B) 5 C) 6 D) 7 E) 8



[AB] ⊥ [BE]
[DE] ⊥ [BE]
[AC] ⊥ [CD]
|BC| = |CE|
|AB| = 9 cm
|DE| = 4 cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

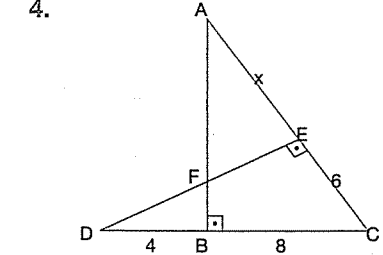
- A) 4 B) 5 C) 6 D) 7 E) 8



[AB] ⊥ [BE]
[DE] ⊥ [BE]
[AC] ⊥ [CD]
|AB| = 6 cm
|DE| = 3 cm
|CE| = 4 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) $\frac{9}{2}$ B) 4 C) $\frac{7}{2}$ D) 3 E) $\frac{5}{2}$



[DE] ⊥ [AC]
[AB] ⊥ [DC]
|BC| = 8 cm
|EC| = 6 cm
|DB| = 4 cm

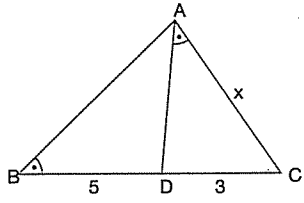
Yukarıdaki verilere göre, |AE| = x kaç cm dir?

- A) 14 B) 13 C) 12 D) 11 E) 10

1. A 2. A 3. C 4. E

Açı - Açı Benzerliği - IV

Örnek



ABC bir üçgen

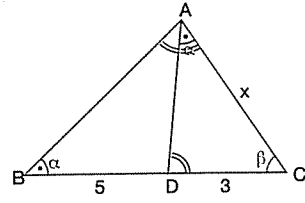
$$m(\widehat{DAC}) = m(\widehat{ABC})$$

$$|BD| = 5 \text{ cm}, |DC| = 3 \text{ cm}$$

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) $2\sqrt{3}$ B) 4 C) $2\sqrt{5}$ D) $2\sqrt{6}$ E) 5

Çözüm



$$m(\widehat{DAC}) = m(\widehat{ABC})$$

ve C açısı ortak ise,

$$m(\widehat{ADC}) = m(\widehat{BAC})$$

olur.

Buna göre, A. A. A Benzerlik Teoreminden,

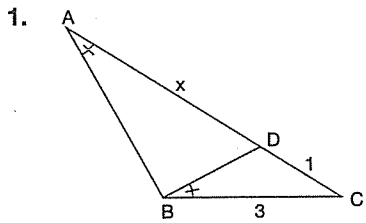
$$\widehat{ABC} \sim \widehat{DAC} \Rightarrow \frac{x}{8} = \frac{3}{x}$$

$$\Rightarrow x^2 = 24$$

$$\Rightarrow x = 2\sqrt{6} \text{ cm olur.}$$

Cevap D

TEST - 4



ABC bir üçgen

$$m(\widehat{BAC}) = m(\widehat{DBC})$$

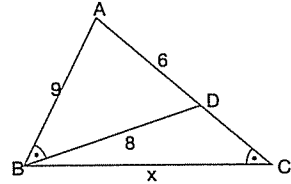
$$|BC| = 3 \text{ cm}$$

$$|DC| = 1 \text{ cm}$$

Yukarıdaki verilene göre, $|AD| = x$ kaç cm dir?

- A) 7 B) 8 C) 9 D) 10 E) 11

3.



ABC bir üçgen

$$m(\widehat{ABD}) = m(\widehat{BCA})$$

$$|AB| = 9 \text{ cm}$$

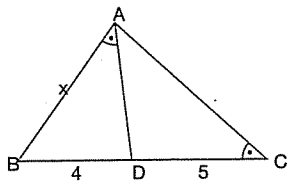
$$|BD| = 8 \text{ cm}$$

$$|AD| = 6 \text{ cm}$$

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 10 B) 12 C) 13 D) 14 E) 15

2.



ABC bir üçgen

$$m(\widehat{ACB}) = m(\widehat{BAD})$$

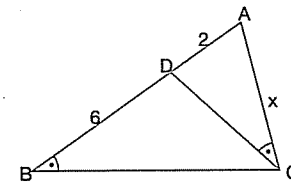
$$|DC| = 5 \text{ br}$$

$$|BD| = 4 \text{ br}$$

Yukarıdaki verilene göre, $|AB| = x$ kaç br dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



ABC bir üçgen

$$m(\widehat{ABC}) = m(\widehat{ACD})$$

$$|DB| = 6 \text{ cm}$$

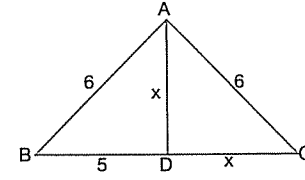
$$|AD| = 2 \text{ cm}$$

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 8 B) 7 C) 6 D) 5 E) 4

Açı - Açı Benzerliği - V

Örnek



ABC bir üçgen

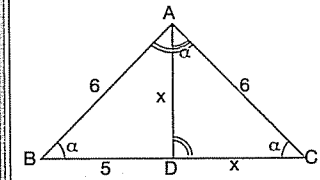
$$|AD| = |DC| = x, |AB| = |AC| = 6 \text{ cm}$$

$$|BD| = 5 \text{ cm}$$

Yukarıdaki verilene göre, x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

Çözüm



$$|AD| = |DC| \text{ ise,}$$

$$m(\widehat{A}) = m(\widehat{C}) = \alpha$$

$$|AB| = |AC| \text{ ise,}$$

$$m(\widehat{B}) = m(\widehat{C}) = \alpha$$

olur.

Buna göre, $m(\widehat{ADC}) = m(\widehat{BAC})$ dir.

O halde, A. A. A Benzerlik Teoreminden,

$$\widehat{ABC} \sim \widehat{DAC} \Rightarrow \frac{6}{x+5} = \frac{x}{6}$$

$$\Rightarrow x^2 + 5x = 36$$

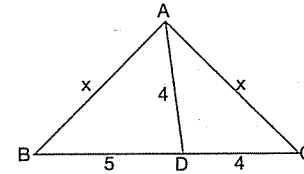
$$\Rightarrow x^2 + 5x - 36 = 0$$

$$\Rightarrow x = 4 \text{ cm olur.}$$

Cevap A

TEST - 5

1.



ABC bir üçgen

$$|AB| = |AC|$$

$$|AD| = |DC|$$

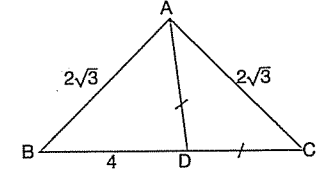
$$|BD| = 5 \text{ cm}$$

$$|DC| = 4 \text{ cm}$$

Yukarıdaki verilene göre, $|AC| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

3.



ABC bir üçgen

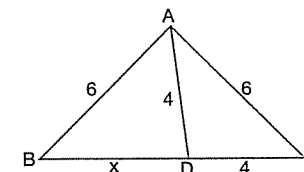
$$|AD| = |DC|, |AC| = |AB| = 2\sqrt{3} \text{ cm}$$

$$|BD| = 4 \text{ cm}$$

Yukarıdaki verilene göre, $|DC|$ kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

2.



ABC bir üçgen

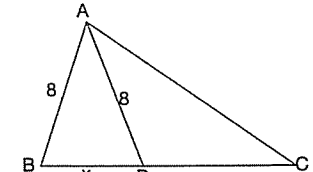
$$|AB| = |AC| = 6 \text{ br}$$

$$|AD| = |DC| = 4 \text{ br}$$

Yukarıdaki verilene göre, $|BD| = x$ kaç br dir?

- A) 8 B) 7 C) 6 D) 5 E) 4

4.



ABC bir üçgen

$$|BC| = |AC| = 20 \text{ cm}$$

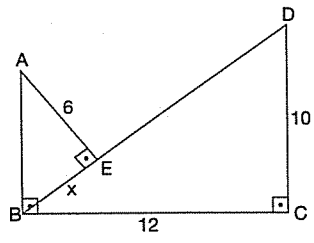
$$|AB| = |AD| = 8 \text{ cm}$$

Yukarıdaki verilene göre, $|BD| = x$ kaç cm dir?

- A) $\frac{16}{5}$ B) $\frac{18}{5}$ C) $\frac{21}{5}$ D) $\frac{23}{5}$ E) $\frac{27}{5}$

Açı - Açı Benzerliği - VI

Örnek

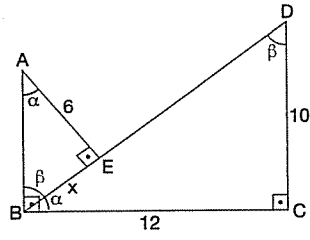


BDC bir dik
üçgen
[AB] ⊥ [BC]
[AE] ⊥ [BD]
|BC| = 12 cm
|DC| = 10 cm
|AE| = 6 cm

Yukarıdaki verilere göre, |BE| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm

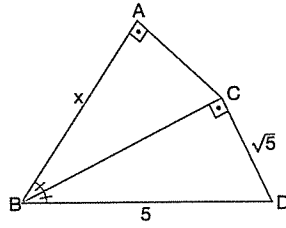


$$\begin{aligned} \widehat{ABE} &\sim \widehat{BDC} \\ \Rightarrow \frac{x}{10} &= \frac{6}{12} \\ \Rightarrow x &= 5 \text{ cm} \end{aligned}$$

Cevap E

TEST - 6

1.

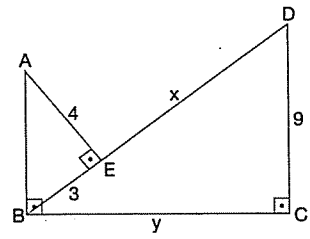


ABC ve BCD
dik üçgen
 $m(\widehat{ABC}) = m(\widehat{CBD})$
|BD| = 5 cm
|CD| = $\sqrt{5}$ cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

3.



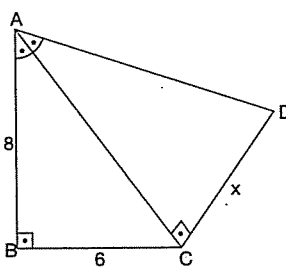
BDC bir dik
üçgen
[AB] ⊥ [BC]
[AE] ⊥ [BD]
|DC| = 9 cm
|AE| = 4 cm

|BE| = 3 cm, |DE| = x, |BC| = y

Yukarıdaki verilere göre, x + y toplamı kaç cm dir?

- A) 18 B) 20 C) 22 D) 24 E) 26

2.

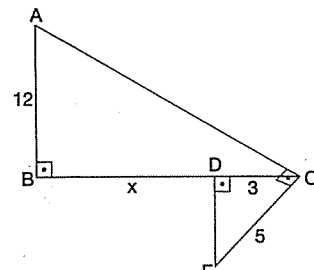


ABC ve ACD bir
dik üçgen
 $m(\widehat{BAC}) = m(\widehat{CAD})$
|AB| = 8 cm
|BC| = 6 cm

Yukarıdaki verilere göre, |CD| = x kaç cm dir?

- A) $\frac{9}{2}$ B) $\frac{11}{2}$ C) $\frac{13}{2}$ D) $\frac{15}{2}$ E) $\frac{17}{2}$

4.



[AB] ⊥ [BC]
[AC] ⊥ [CE]
[DE] ⊥ [BC]
|AB| = 12 cm
|EC| = 5 cm
|DC| = 3 cm

Yukarıdaki verilere göre, |BD| = x kaç cm dir?

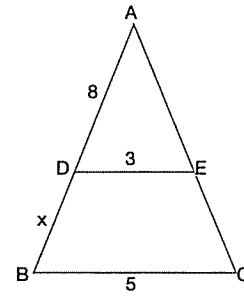
- A) 17 B) 15 C) 13 D) 11 E) 9

sonuç yayınları

1. C 2. D 3. D 4. C

Açı - Açı Benzerliği - VII

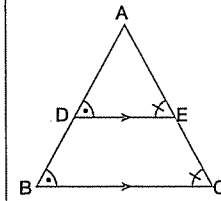
Örnek



ABC bir üçgen
[DE] // [BC]
|AD| = 8 cm
|BC| = 5 cm
|DE| = 3 cm

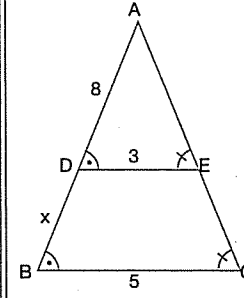
Yukarıdaki verilere göre, |DB| = x kaç cm dir?

- A) 5 B) $\frac{16}{3}$ C) 6 D) $\frac{20}{3}$ E) $\frac{22}{3}$



$$\begin{aligned} \widehat{ABC} &\sim \widehat{ADE} \\ \frac{|AD|}{|AB|} &= \frac{|DE|}{|BC|} = \frac{|AE|}{|AC|} \end{aligned}$$

Çözüm

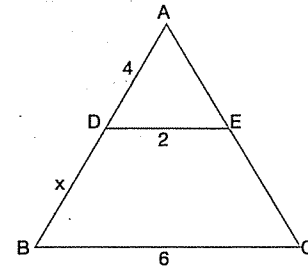


Temel Benzerlik Teoremine
göre,
 $\widehat{ABC} \sim \widehat{ADE}$
 $\Rightarrow \frac{8}{8+x} = \frac{3}{5}$
 $\Rightarrow 3x + 24 = 40$
 $\Rightarrow 3x = 16$
 $\Rightarrow x = \frac{16}{3}$ olur.

Cevap B

TEST - 7

1.

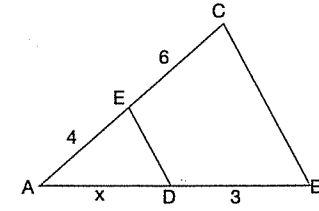


ABC bir üçgen
[DE] // [BC]
|BC| = 6 cm
|AD| = 4 cm
|DE| = 2 cm

Yukarıdaki verilere göre, |DB| = x kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

3.

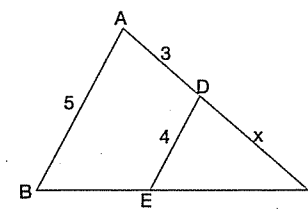


ABC bir üçgen
[ED] // [CB]
|EC| = 6 cm
|AE| = 4 cm
|DB| = 3 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

2.

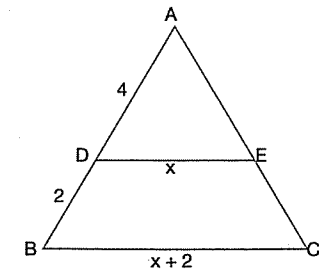


ABC bir üçgen
[AB] // [DE]
|AB| = 5 cm
|DE| = 4 cm
|AD| = 3 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) 10 B) 11 C) 12 D) 13 E) 14

4.



ABC bir üçgen
[DE] // [BC]
|AD| = 4 cm
|DB| = 2 cm
|BC| = x + 2
|DE| = x

Yukarıdaki verilere göre, |DE| = x kaç cm dir?

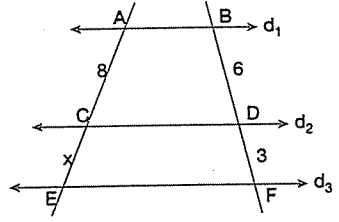
- A) 8 B) 7 C) 6 D) 5 E) 4

sonuç yayınları

1. C 2. C 3. B 4. E

Tales Teoremi

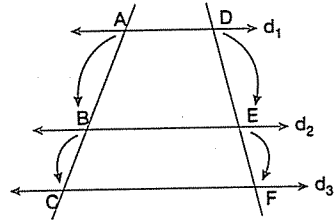
Örnek



$$\begin{aligned} d_1 // d_2 // d_3 \\ |AC| = 8 \text{ cm} \\ |BD| = 6 \text{ cm} \\ |DF| = 3 \text{ cm} \end{aligned}$$

Yukarıdaki verilene göre, $|CE| = x$ kaç cm dir?

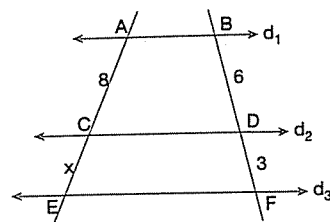
- A) 2 B) 4 C) 6 D) 8 E) 10



Paralel doğrular
kendilerini kesen
doğruları aynı
oranda bölerler.

$$\frac{|AB|}{|BC|} = \frac{|DE|}{|EF|}$$

Çözüm

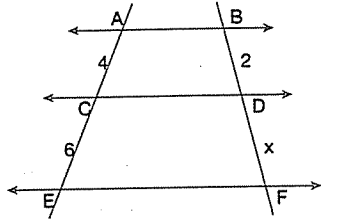


$$\begin{aligned} \text{Tales Teoremine} \\ \text{göre,} \\ \frac{8}{x} = \frac{6}{3} \\ \Rightarrow 6x = 24 \\ \Rightarrow x = 4 \text{ cm olur.} \end{aligned}$$

Cevap B

TEST - 8

1.

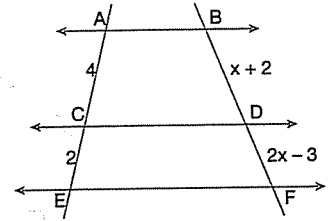


$$\begin{aligned} AB // CD // EF \\ |CE| = 6 \text{ br} \\ |AC| = 4 \text{ br} \\ |BD| = 2 \text{ br} \end{aligned}$$

Yukarıdaki verilene göre, $|DF| = x$ kaç br dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

3.

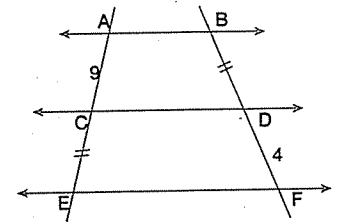


$$\begin{aligned} AB // CD // EF \\ |AC| = 4 \text{ cm} \\ |CE| = 2 \text{ cm} \\ |BD| = x + 2 \\ |DF| = 2x - 3 \end{aligned}$$

Yukarıdaki verilene göre, x kaç cm dir?

- A) $\frac{5}{3}$ B) $\frac{8}{3}$ C) $\frac{10}{3}$ D) $\frac{11}{3}$ E) $\frac{13}{3}$

2.

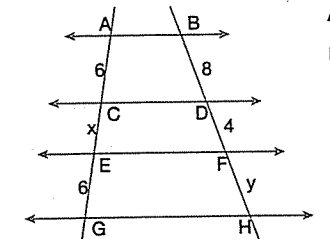


$$\begin{aligned} AB // CD // EF \\ |CE| = |BD| \\ |AC| = 9 \text{ cm} \\ |DF| = 4 \text{ cm} \end{aligned}$$

Yukarıdaki verilene göre, $|CE|$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



$$\begin{aligned} AB // CD // EF // GH \\ |BD| = 8 \text{ cm} \\ |AC| = 6 \text{ cm} \\ |DF| = 4 \text{ cm} \\ |EG| = 6 \text{ cm} \\ |CE| = x, |FH| = y \end{aligned}$$

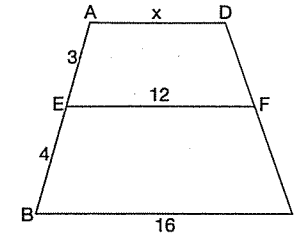
Yukarıdaki verilene göre, $x + y$ kaç cm dir?

- A) 9 B) 10 C) 11 D) 13 E) 15

1. D 2. C 3. B 4. C

Temel Benzerlik Teoremi - I

Örnek

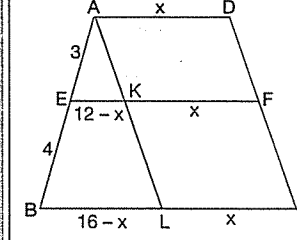


$$\begin{aligned} [AD] // [EF] // [BC] \\ |AE| = 3 \text{ cm} \\ |EB| = 4 \text{ cm} \\ |EF| = 12 \text{ cm} \\ |BC| = 16 \text{ cm} \end{aligned}$$

Yukarıdaki verilene göre, $|AD| = x$ kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10

Çözüm



$$\begin{aligned} [AL] // [DK] \text{ çizelim.} \\ [LC] // [KF] // [AD] = x \\ |EF| = 12 \text{ cm ise,} \\ |EK| = 12 - x \\ |BC| = 16 \text{ cm ise,} \\ |BL| = 16 - x \end{aligned}$$

ABL üçgeninde $[EK] // [BL]$

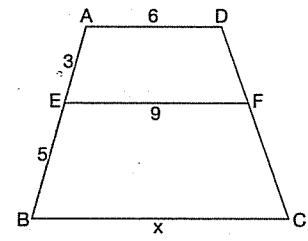
Temel Benzerlik Teoremine göre,

$$\begin{aligned} \frac{|AE|}{|AB|} = \frac{|EK|}{|BL|} \Rightarrow \frac{3}{7} = \frac{12-x}{16-x} \Rightarrow 48-3x = 84-7x \\ \Rightarrow 4x = 36 \\ \Rightarrow x = 9 \text{ cm olur.} \end{aligned}$$

Cevap D

TEST - 9

1.

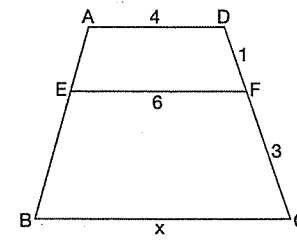


$$\begin{aligned} [AD] // [EF] // [BC] \\ |AE| = 3 \text{ br} \\ |EB| = 5 \text{ br} \\ |AD| = 6 \text{ br} \\ |EF| = 9 \text{ br} \end{aligned}$$

Yukarıdaki verilene göre, $|BC| = x$ kaç br dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

3.

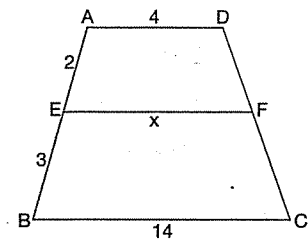


$$\begin{aligned} [AD] // [EF] // [BC] \\ |EF| = 6 \text{ cm} \\ |AD| = 4 \text{ cm} \\ |FC| = 3 \text{ cm} \\ |DF| = 1 \text{ cm} \end{aligned}$$

Yukarıdaki verilene göre, $|BC| = x$ kaç cm dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

2.

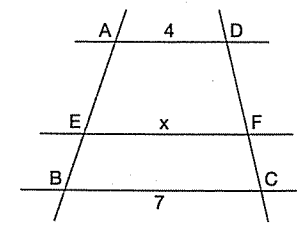


$$\begin{aligned} [AD] // [EF] // [BC] \\ |AE| = 2 \text{ cm} \\ |EB| = 3 \text{ cm} \\ |AD| = 4 \text{ cm} \\ |BC| = 14 \text{ cm} \end{aligned}$$

Yukarıdaki verilene göre, $|EF| = x$ kaç cm dir?

- A) 12 B) 11 C) 10 D) 8 E) 6

4.



$$\begin{aligned} [AD] // [EF] // [BC] \\ |DF| = 2|FC| \\ |AD| = 4 \text{ cm} \\ |BC| = 7 \text{ cm} \end{aligned}$$

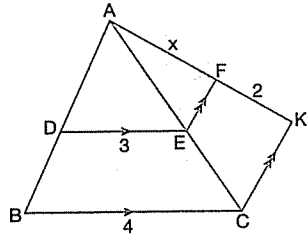
Yukarıdaki verilene göre, $|EF| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

1. C 2. D 3. B 4. B

Temel Benzerlik Teoremi - II

Örnek

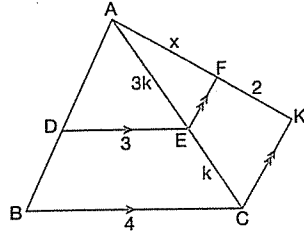


ABC ve ACK
birer üçgen
[DE] // [BC]
[EF] // [CK]
|BC| = 4 cm
|DE| = 3 cm
|FK| = 2 cm

Yukarıdaki verilere göre, |AF| = x kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 8

Çözüm



ABC üçgeninde Te-
mel Benzerlik Teore-
mine göre,
 $\frac{|AE|}{|AC|} = \frac{|DE|}{|BC|}$
 $\frac{|AE|}{|AC|} = \frac{3}{4}$

|AE| = 3k ve |EC| = k olsun.

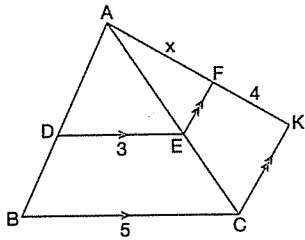
ACK üçgeninde Tales teoremine göre,

$$\frac{|AE|}{|EC|} = \frac{|AF|}{|FK|} \Rightarrow \frac{3k}{k} = \frac{x}{2} \Rightarrow x = 6 \text{ cm olur.}$$

Cevap D

TEST - 10

1.

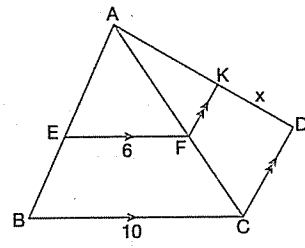


ABC ve ACK
birer üçgen
[DE] // [BC]
[EF] // [CK]
|BC| = 5 br
|FK| = 4 br
|DE| = 3 br

Yukarıdaki verilere göre, |AF| = x kaç br dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

3.

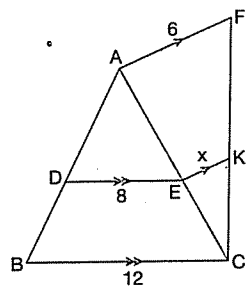


ABC ve ACD
birer üçgen
[EF] // [BC]
[FK] // [CD]
|AD| = 20 cm
|BC| = 10 cm
|EF| = 6 cm

Yukarıdaki verilere göre, |KD| = x kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

2.

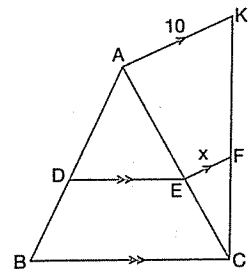


ABC ve ACF birer
üçgen
[DE] // [BC]
[EK] // [AF]
|BC| = 12 cm
|DE| = 8 cm
|AF| = 6 cm

Yukarıdaki verilere göre, |EK| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

4.



ABC ve ACK birer
üçgen
[DE] // [BC]
[EF] // [AK]
3|DB| = 2|AD|
|AK| = 10 cm

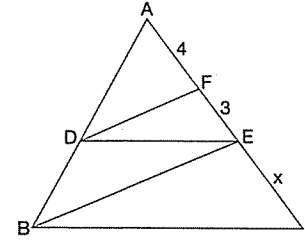
Yukarıdaki verilere göre, |EF| = x kaç cm dir?

- A) 5 B) 4 C) 3 D) 2 E) 1

1. C 2. B 3. D 4. B

Tales Benzerlik Teoremi - III

Örnek

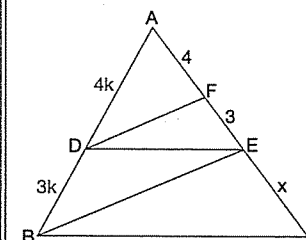


ABC bir üçgen
[DF] // [BE]
[DE] // [BC]
|AF| = 4 cm
|FE| = 3 cm

Yukarıdaki verilere göre, |EC| = x kaç cm dir?

- A) 4 B) $\frac{9}{2}$ C) $\frac{21}{4}$ D) 6 E) $\frac{27}{4}$

Çözüm



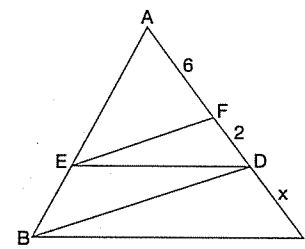
[DF] // [BE]
 $\frac{|AD|}{|DB|} = \frac{4}{3}$ (Tales)
|AD| = 4k
|DB| = 3k olsun.
[DE] // [BC]

$$\frac{4k}{3k} = \frac{7}{x} \Rightarrow 4x = 21 \Rightarrow x = \frac{21}{4} \text{ cm olur.}$$

Cevap C

TEST - 11

1.

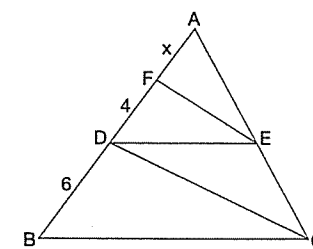


ABC bir üçgen
[ED] // [BC]
[EF] // [BD]
|AF| = 6 cm
|FD| = 2 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) $\frac{8}{3}$ B) 2 C) $\frac{7}{3}$ D) 3 E) $\frac{5}{2}$

3.

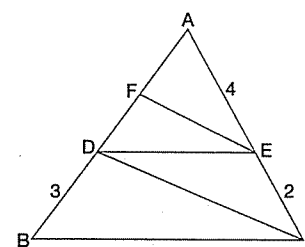


ABC bir üçgen
[DE] // [BC]
[FE] // [DC]
|FD| = 4 cm
|DB| = 6 cm

Yukarıdaki verilere göre, |AF| = x kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

2.

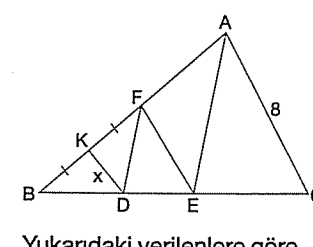


ABC bir üçgen
[FE] // [DC]
[DE] // [BC]
|AE| = 4 cm
|DB| = 3 cm
|EC| = 2 cm

Yukarıdaki verilere göre, |FD| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

4.



ABC bir üçgen
[KD] // [FE] // [AC]
[FD] // [AE]
|KB| = |KF|
|AC| = 8 cm

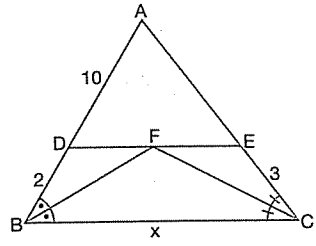
Yukarıdaki verilere göre, |KD| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

1. A 2. E 3. D 4. E

Temel Benzerlik Teoremi - IV

Örnek



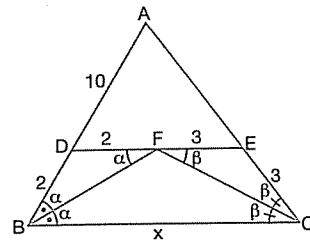
ABC bir üçgen
[BF] ve [FC]
açıortaylar
[DE] // [BC]
|DB| = 2 cm
|EC| = 3 cm
|AD| = 10 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 15 B) 12 C) 10 D) 8 E) 6



Çözüm



[DE] // [BC] ise,
 $m(\widehat{BFD}) = m(\widehat{FBD}) = \alpha$
|FD| = |DB| = 2 cm
 $m(\widehat{EFC}) = m(\widehat{ECF}) = \beta$
|EC| = |EF| = 3 cm olur.

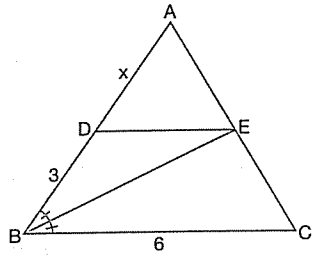
Temel Benzerlik Teoremine göre,

$$\frac{|AD|}{|AB|} = \frac{|DE|}{|BC|} \Rightarrow \frac{10}{12} = \frac{5}{x} \Rightarrow x = 6 \text{ cm olur.}$$

Cevap E

TEST - 12

1.

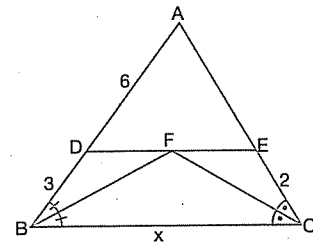


ABC bir üçgen
[BE] açıortay
[DE] // [BC]
|BC| = 6 cm
|DB| = 3 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

3.



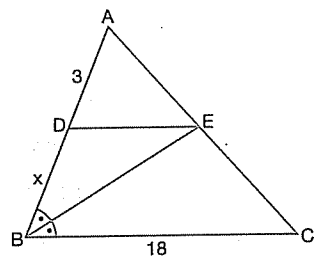
ABC bir üçgen
[BF] ve [FC]
açıortaylar
[DE] // [BC]
|AD| = 6 cm
|DB| = 3 cm
|EC| = 2 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) $\frac{7}{2}$ B) $\frac{9}{2}$ C) $\frac{11}{2}$ D) $\frac{13}{2}$ E) $\frac{15}{2}$

sonuç yayınları

2.

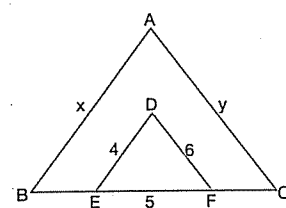


ABC bir üçgen
[BE] açıortay
[DE] // [BC]
|BC| = 18 br
|AD| = 3 br

Yukarıdaki verilere göre, |DB| = x kaç br dir?

- A) 8 B) 6 C) 5 D) 4 E) 3

4.



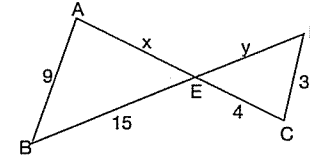
ABC bir üçgen
D, iç teğet
çemberinin merkezi
[DE] // [AB]
[DF] // [AC]
|DF| = 6 cm

|EF| = 5 cm, |DE| = 4 cm, |AC| = y, |AB| = x
Yukarıdaki verilere göre, y - x kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 8

Kelebek Benzerliği - I

Örnek



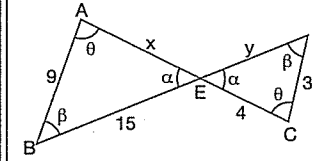
A, E, C ve D, E, B
doğrusal
[AB] // [DC]
|BE| = 15 cm
|AB| = 9 cm
|EC| = 4 cm
|DC| = 3 cm

Yukarıdaki verilere göre, x + y kaç cm dir?

- A) 6 B) 8 C) 10 D) 14 E) 17



Çözüm



[AB] // [DC]
olduğundan
ABE ve CDE benzer
üçgenlerdir.

Buna göre,

$$\frac{4}{x} = \frac{3}{9} = \frac{y}{15} \Rightarrow 3x = 36 \text{ ve } 9y = 45$$

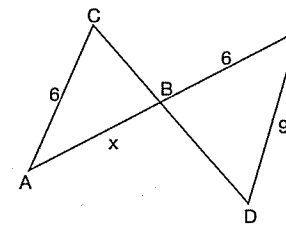
$$\Rightarrow x = 12 \text{ cm ve } y = 5 \text{ cm}$$

x + y = 12 + 5 = 17 cm olur.

Cevap E

TEST - 13

1.

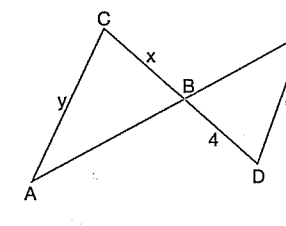


A, B, E ve C, B, D
doğrusal
[AC] // [DE]
|DE| = 9 cm
|AC| = |BE| = 6 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 8

3.

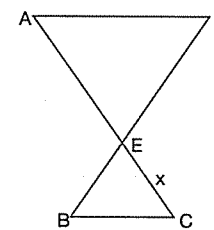


A, B, E ve C, B, D
doğrusal
[AC] // [DE]
3|BE| = 2|AB|
|DE| = 6 br
|BD| = 4 br

Yukarıdaki verilere göre, x + y toplamı kaç br dir?

- A) 10 B) 12 C) 13 D) 15 E) 18

2.

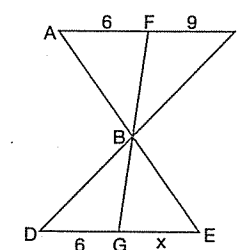


A, E, C ve B, E, D
doğrusal
[AD] // [BC]
|AD| = 3|BC|
|AC| = 20 cm

Yukarıdaki verilere göre, |EC| = x kaç cm dir?

- A) 5 B) 7 C) 9 D) 10 E) 12

4.



[AE] ∩ [FG] ∩ [DC] = {B}
[AC] // [DE]
|AF| = |DG| = 6 cm
|FC| = 9 cm

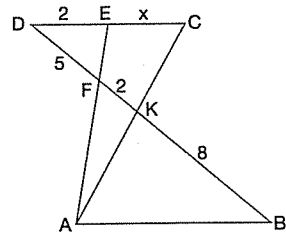
Yukarıdaki verilere göre, |GE| = x kaç cm dir?

- A) 8 B) 7 C) 6 D) 5 E) 4

sonuç yayınları

Kelebek Benzerliği - II

Örnek

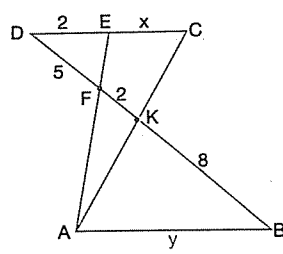


[DC] // [AB]
|KB| = 8 cm
|DF| = 5 cm
|FK| = |DE| = 2 cm

Yukarıdaki verilere göre, |EC| = x kaç cm dir?

- A) $\frac{7}{2}$ B) $\frac{5}{2}$ C) 2 D) $\frac{3}{2}$ E) 1

Çözüm



F noktasına göre,
 $\widehat{ABF} \sim \widehat{EDF}$
Buna göre,
 $\frac{2}{y} = \frac{5}{10}$
 $\Rightarrow y = 4$ cm olur.

K noktasına göre,

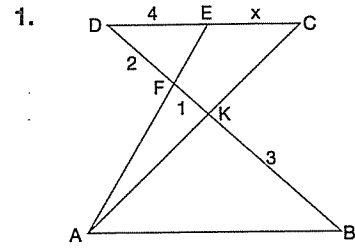
$\widehat{ABK} \sim \widehat{CDK}$ dir. Buna göre,

$$\frac{x+2}{4} = \frac{7}{8} \Rightarrow 8x+16=28 \Rightarrow 8x=12$$

$$\Rightarrow x = \frac{3}{2} \text{ cm olur.}$$

Cevap D

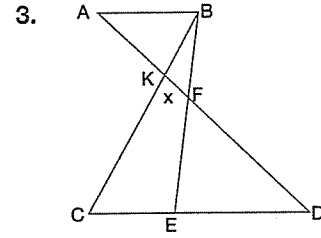
TEST - 14



[DC] // [AB]
|DE| = 4 br
|KB| = 3 br
|DF| = 2 br
|FK| = 1 br

Yukarıdaki verilere göre, |EC| = x kaç br dir?

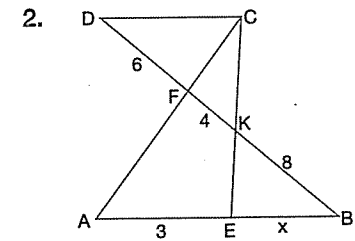
- A) 3 B) 4 C) 5 D) 6 E) 8



[AB] // [CD]
 $|CE| = \frac{|AB|}{2} = \frac{|ED|}{3}$
|AD| = 30 cm

Yukarıdaki verilere göre, |KF| = x kaç cm dir?

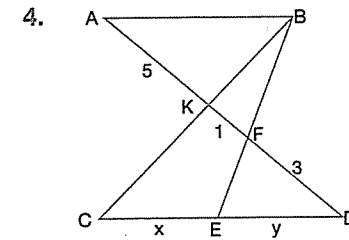
- A) 5 B) 4 C) 3 D) 2 E) 1



[AB] // [DC]
|DF| = 6 cm
|KB| = 8 cm
|AE| = 3 cm
|FK| = 4 cm

Yukarıdaki verilere göre, |EB| = x kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2



[AB] // [CD]
|AK| = 5 cm
|FD| = 3 cm
|KF| = 1 cm

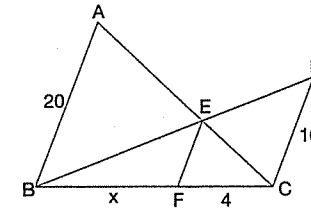
Yukarıdaki verilere göre, $\frac{x}{y}$ oranı kaçtır?

- A) $\frac{3}{5}$ B) $\frac{4}{5}$ C) 1 D) $\frac{4}{3}$ E) $\frac{5}{3}$

1. B 2. E 3. D 4. A

Kelebek Benzerliği - Temel Benzerlik Teoremi

Örnek

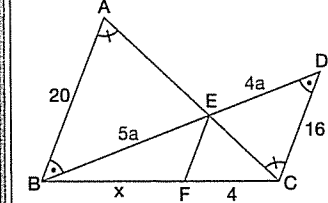


ABC bir üçgen
[AB] // [EF] // [DC]
|AB| = 20 cm
|DC| = 16 cm
|FC| = 4 cm

Yukarıdaki verilere göre, |BF| = x kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 10

Çözüm



[AB] // [DC]
olduğundan,
 $\widehat{ABE} \sim \widehat{CDE}$

$$\widehat{ABE} \sim \widehat{CDE} \Rightarrow \frac{|AB|}{|CD|} = \frac{|BE|}{|DE|} = \frac{|AE|}{|CE|}$$

$$\frac{20}{16} = \frac{|BE|}{|DE|} \Rightarrow \frac{|BE|}{|DE|} = \frac{5}{4}$$

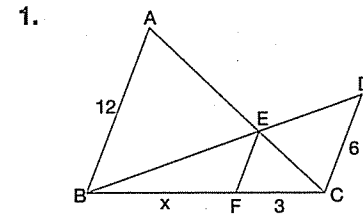
BDC üçgeninde [EF] // [DC] olduğundan,

Tales Teoreminden

$$\frac{|BF|}{|FC|} = \frac{|BE|}{|DE|} \Rightarrow \frac{x}{4} = \frac{5}{4} \Rightarrow x = 5 \text{ cm bulunur.}$$

Cevap A

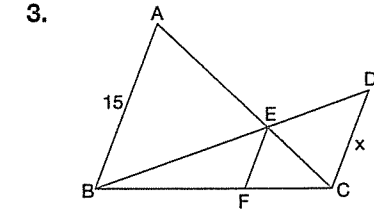
TEST - 15



ABC bir üçgen
[AB] // [EF] // [DC]
B, E, D doğrusal
|AB| = 12 cm
|DC| = 6 cm
|FC| = 3 cm

Yukarıdaki verilere göre, |BF| = x kaç cm dir?

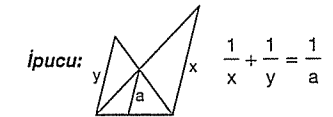
- A) 3 B) 4 C) 5 D) 6 E) 7



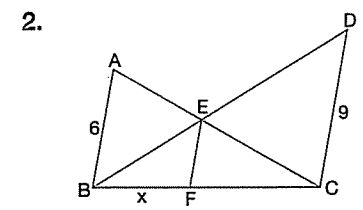
ABC bir üçgen
[AB] // [EF] // [DC]
3|FC| = 2|BF|
|AB| = 15 cm

Yukarıdaki verilere göre, |DC| = x kaç cm dir?

- A) 6 B) 7 C) 8 D) 9 E) 10



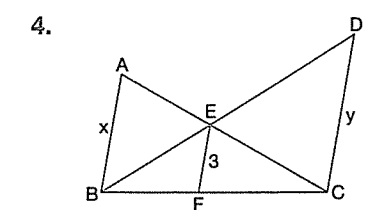
İpucu: $\frac{1}{x} + \frac{1}{y} = \frac{1}{a}$



ABC bir üçgen
B, E, D doğrusal
[AB] // [EF] // [DC]
|BC| = 10 cm
|DC| = 9 cm
|AB| = 6 cm

Yukarıdaki verilere göre, |BF| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8



ABC bir üçgen
B, E, D doğrusal
[AB] // [FE] // [DC]
|FE| = 3 cm
|AB| = x

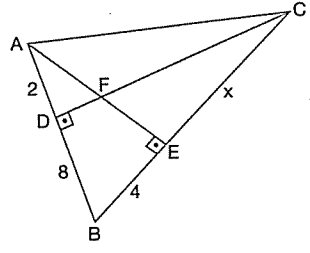
|DC| = y, $x \cdot y = 24 \text{ cm}^2$
olduğuna göre, x + y toplamı kaç cm dir?

- A) 8 B) 9 C) 10 D) 11 E) 12

1. D 2. A 3. E 4. A

Açı - Açı - Açı Benzerliği Karma - I

Örnek



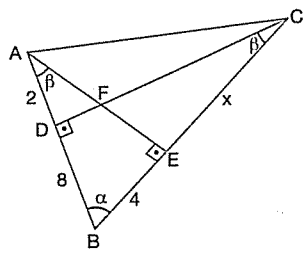
ABC bir üçgen
 $[CD] \perp [AB]$
 $[AE] \perp [BC]$
 $|DB| = 8$ cm
 $|BE| = 4$ cm
 $|AD| = 2$ cm

Yukarıdaki verilene göre, $|EC| = x$ kaç cm dir?

- A) 4 B) 6 C) 8 D) 12 E) 16



Çözüm

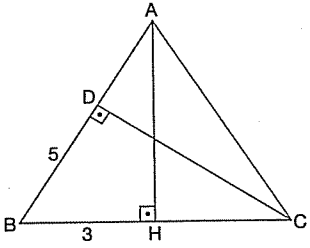


Şekildeki açılara göre,
 $\widehat{ABE} \sim \widehat{CBD}$
 $\frac{4}{8} = \frac{10}{x+4}$
 $x = 16$ cm olur.

Cevap E

TEST - 16

1.

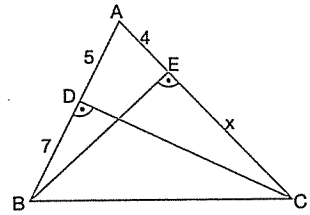


ABC bir üçgen
 $[CD] \perp [AB]$
 $[AH] \perp [BC]$
 $|AH| = 9$ cm
 $|DB| = 5$ cm
 $|BH| = 3$ cm

Yukarıdaki verilene göre, $|CD|$ kaç cm dir?

- A) 9 B) 12 C) 15 D) 18 E) 21

3.

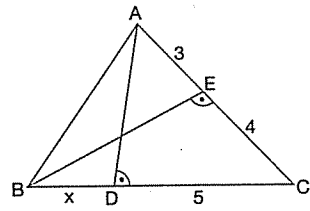


ABC bir üçgen
 $m(\widehat{BDC}) = m(\widehat{BEC})$
 $|DB| = 7$ cm
 $|AD| = 5$ cm
 $|AE| = 4$ cm

Yukarıdaki verilene göre, $|EC| = x$ kaç cm dir?

- A) 10 B) 11 C) 12 D) 13 E) 14

2.

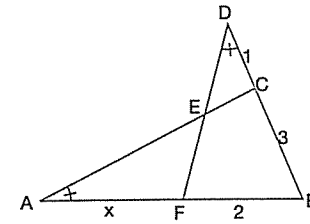


ABC bir üçgen
 $m(\widehat{ADC}) = m(\widehat{BEC})$
 $|DC| = 5$ br
 $|EC| = 4$ br
 $|AE| = 3$ br

Yukarıdaki verilene göre, $|BD| = x$ kaç br dir?

- A) $\frac{3}{5}$ B) $\frac{1}{2}$ C) $\frac{3}{7}$ D) $\frac{1}{3}$ E) $\frac{1}{4}$

4.



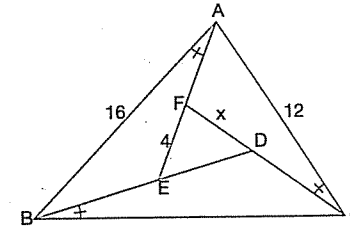
ABC ve DFB
 birer üçgen
 $m(\widehat{BDF}) = m(\widehat{CAB})$
 $|CB| = 3$ cm
 $|FB| = 2$ cm
 $|DC| = 1$ cm

Yukarıdaki verilene göre, $|AF| = x$ kaç cm dir?

- A) 7 B) 6 C) 5 D) 4 E) 3

Açı - Açı - Açı Benzerliği Karma - II

Örnek



ABC bir üçgen

$m(\widehat{BAE}) = m(\widehat{DBC}) = m(\widehat{ACF})$

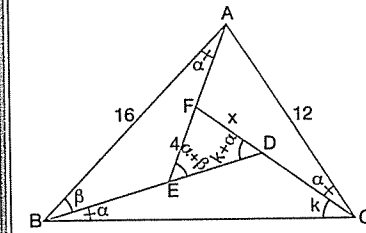
$|AB| = 16$ cm, $|AC| = 12$ cm, $|FE| = 4$ cm

Yukarıdaki verilene göre, $|FD| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6



Çözüm



$m(\widehat{ABE}) = \beta$
 dersek,
 $m(\widehat{ABC}) = \alpha + \beta$
 $m(\widehat{FED}) = \alpha + \beta$

$m(\widehat{BCD}) = k$ dersek, $m(\widehat{ACB}) = m(\widehat{FDE}) = k + \alpha$

ABC ve FED üçgenlerinin ikişer açısı eşit olduğundan

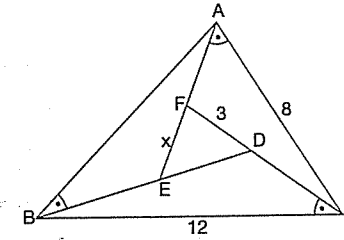
$\widehat{ABC} \sim \widehat{FED}$ dir. Dolayısıyla,

$$\frac{|AB|}{|FE|} = \frac{|AC|}{|FD|} \Rightarrow \frac{16}{4} = \frac{12}{x} \Rightarrow x = 3 \text{ cm bulunur.}$$

Cevap B

TEST - 17

1.



ABC bir üçgen

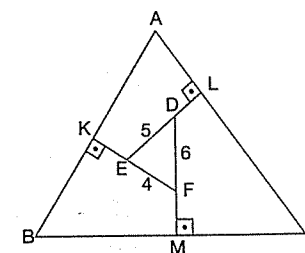
$m(\widehat{ABD}) = m(\widehat{CAE}) = m(\widehat{BCF})$

$|BC| = 12$ cm, $|AC| = 8$ cm, $|FD| = 3$ cm

Yukarıdaki verilene göre, $|FE| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

2.



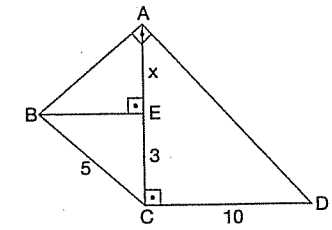
ABC bir üçgen
 $[KF] \perp [AB]$
 $[EL] \perp [AC]$
 $[DM] \perp [BC]$
 $|AC| = 15$ cm
 $|DF| = 6$ cm

$|DE| = 5$ cm, $|EF| = 4$ cm

Yukarıdaki verilere göre, $|AB| + |BC|$ toplamı kaç cm dir?

- A) 20 B) 22 C) 24 D) 28 E) 30

3.

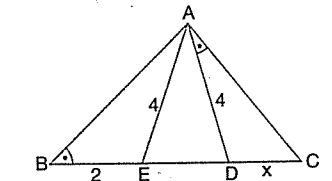


ABCD bir dörtgen
 $[BA] \perp [AD]$
 $[AC] \perp [CD]$
 $[BE] \perp [AC]$
 $|CD| = 10$ cm
 $|BC| = 5$ cm
 $|EC| = 3$ cm

Yukarıdaki verilene göre, $|AE| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

4.



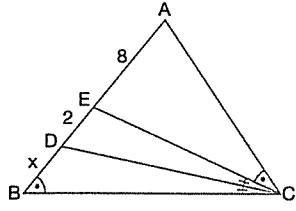
ABC bir üçgen
 $m(\widehat{ABC}) = m(\widehat{CAD})$
 $|AE| = |AD| = 4$ cm
 $|BE| = 2$ cm

Yukarıdaki verilene göre, $|DC| = x$ kaç cm dir?

- A) 5 B) 6 C) 7 D) 8 E) 9

Açı - Açı - Açı Benzerliği Karma - III

Örnek



ABC bir üçgen

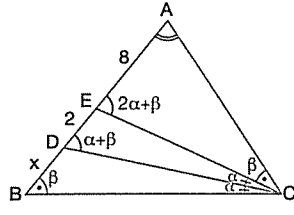
$$m(\widehat{ACE}) = m(\widehat{ABC}), m(\widehat{ECD}) = m(\widehat{DCB})$$

$$|AE| = 8 \text{ cm}, |ED| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|DB| = x$ kaç cm dir?

- A) $\frac{7}{2}$ B) 3 C) $\frac{5}{2}$ D) 2 E) $\frac{3}{2}$

Çözüm



Şekilde açıları yerleştirildikten sonra görüldüğü gibi,
 $|AD| = |AC| = 10 \text{ cm}$
ve $\widehat{AEC} \sim \widehat{ACB}$ olur.

Buna göre,

$$\frac{10}{10+x} = \frac{8}{10} \Rightarrow 8x + 80 = 100$$

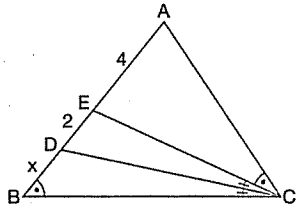
$$\Rightarrow 8x = 20$$

$$\Rightarrow x = \frac{5}{2} \text{ cm olur.}$$

Cevap C

TEST - 18

1.



ABC bir üçgen

$$m(\widehat{ABC}) = m(\widehat{ACE})$$

$$m(\widehat{BCD}) = m(\widehat{ECD})$$

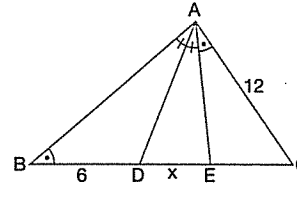
$$|AE| = 4 \text{ cm}$$

$$|DE| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|BD| = x$ kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

3.



ABC bir üçgen

$$m(\widehat{ABC}) = m(\widehat{CAE})$$

$$m(\widehat{BAD}) = m(\widehat{DAE})$$

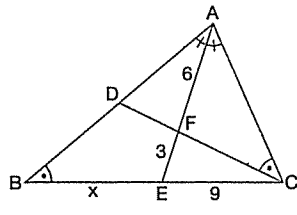
$$|AC| = 12 \text{ cm}$$

$$|BD| = 6 \text{ cm}$$

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

2.



ABC bir üçgen

$[AE]$ açıortay

$$m(\widehat{ACD}) = m(\widehat{ABC})$$

$$|EC| = 9 \text{ cm}$$

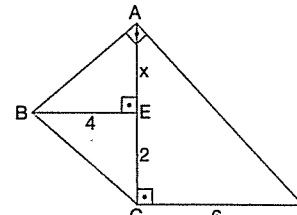
$$|AF| = 6 \text{ cm}$$

$$|FE| = 3 \text{ cm}$$

Yukarıdaki verilere göre, $|BE| = x$ kaç cm dir?

- A) 10 B) 11,5 C) 12 D) 13,5 E) 14

4.



ABCD bir dörtgen

$[BE] \perp [AC]$

$[BA] \perp [AD]$

$[AC] \perp [CD]$

$$|CD| = 6 \text{ cm}$$

$$|BE| = 4 \text{ cm}$$

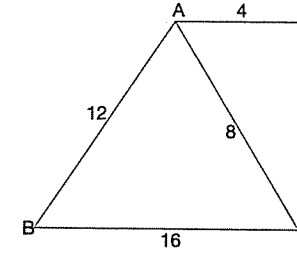
$$|EC| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|AE| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

Kenar - Açı - Kenar Benzerliği

Örnek



$[AD] \parallel [BC]$

$$|BC| = 16 \text{ cm}$$

$$|AB| = 12 \text{ cm}$$

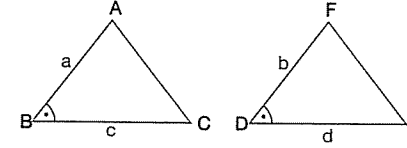
$$|AC| = 8 \text{ cm}$$

$$|AD| = 4 \text{ cm}$$

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

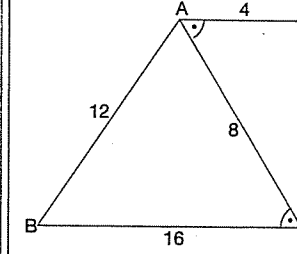
- A) 6 B) 8 C) 10 D) 12 E) 14

K. A. K Benzerliği : Birer açısı ve bu açiya bitişik ikişer kenarı orantılı olan iki üçgen benzerdir.



$$\frac{a}{b} = \frac{c}{d} \text{ ve } m(\widehat{B}) = m(\widehat{D}) \Rightarrow \widehat{ABC} \sim \widehat{FDE}$$

Çözüm



$$[AD] \parallel [BC] \Rightarrow m(\widehat{BCA}) = m(\widehat{CAD}) = \alpha \text{ dir.}$$

$$m(\widehat{BCA}) = m(\widehat{CAD}) = \alpha \text{ ve } \frac{|AC|}{|AD|} = \frac{|BC|}{|AC|}$$

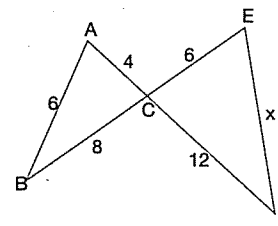
$$\Rightarrow \widehat{ACB} \sim \widehat{DAC}$$

$$\Rightarrow \frac{8}{4} = \frac{16}{8} = \frac{12}{x} \Rightarrow x = 6 \text{ cm olur.}$$

Cevap A

TEST - 19

1.



$[AD] \cap [BE] = \{C\}$

$$|CD| = 12 \text{ br}$$

$$|BC| = 8 \text{ br}$$

$$|AB| = 6 \text{ br}$$

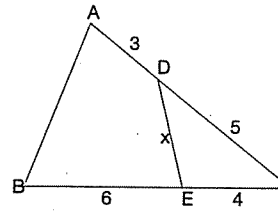
$$|CE| = 6 \text{ br}$$

$$|AC| = 4 \text{ br}$$

Yukarıdaki verilere göre, $|ED| = x$ kaç br dir?

- A) 9 B) 10 C) 11 D) 12 E) 13

2.



ABC bir üçgen

$$|AB| + |DE| = 6 \text{ cm}$$

$$|BE| = 6 \text{ cm}$$

$$|DC| = 5 \text{ cm}$$

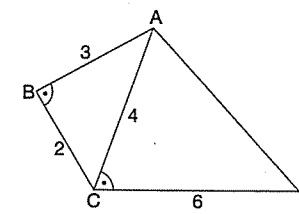
$$|EC| = 4 \text{ cm}$$

$$|AD| = 3 \text{ cm}$$

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 7

3.



ABCD bir dörtgen

$$m(\widehat{ABC}) = m(\widehat{ACD})$$

$$|CD| = 6 \text{ cm}$$

$$|AC| = 4 \text{ cm}$$

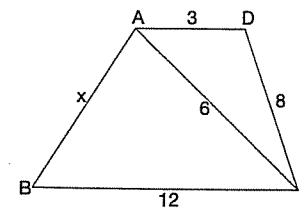
$$|AB| = 3 \text{ cm}$$

$$|BC| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



$[AD] \parallel [BC]$

$$|BC| = 12 \text{ cm}$$

$$|DC| = 8 \text{ cm}$$

$$|AC| = 6 \text{ cm}$$

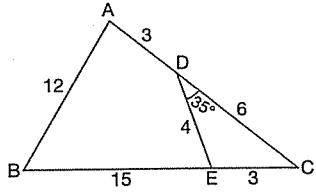
$$|AD| = 3 \text{ cm}$$

Yukarıdaki verilere göre, $|AB| = x$ kaç cm dir?

- A) 12 B) 14 C) 15 D) 16 E) 18

Kenar - Kenar - Kenar Benzerliği

Örnek

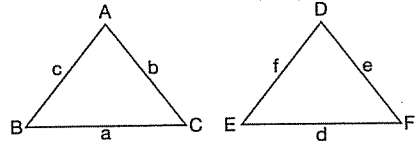


ABC bir üçgen
 $m(\widehat{CDE}) = 35^\circ$
 $|BE| = 15 \text{ cm}$
 $|AB| = 12 \text{ cm}$
 $|DC| = 6 \text{ cm}$
 $|AD| = |EC| = 3 \text{ cm}$

olduğuna göre, $m(\widehat{ABC}) = \alpha$ kaç derecedir?

- A) 70 B) 65 C) 55 D) 45 E) 35

K. K. K Benzerliği : İki üçgenin karşılıklı bütün kenarları orantılı ise bu iki üçgen benzerdir.



$$\frac{a}{d} = \frac{b}{e} = \frac{c}{f}$$

$$\widehat{ABC} \sim \widehat{DEF}$$

$$m(\widehat{A}) = m(\widehat{D}), m(\widehat{B}) = m(\widehat{E}), m(\widehat{C}) = m(\widehat{F})$$

Çözüm

ABC üçgeni ile DEC üçgenlerinin kenar uzunluklarını küçükten büyüğe sıralayıp, oranlarının eşit olup olmadıklarına bakalım.

$$9, 12, 18 \leftrightarrow 3, 4, 6$$

$$\frac{9}{3} = \frac{12}{4} = \frac{18}{6} \text{ olduğundan, } \widehat{ABC} \sim \widehat{EDC} \text{ dir.}$$

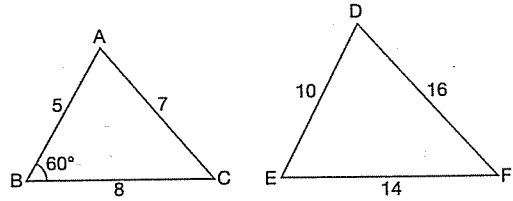
O halde, $m(\widehat{D}) = m(\widehat{B}) = 35^\circ$ dir.

$$\alpha = 35^\circ \text{ olur.}$$

Cevap E

TEST - 20

1.

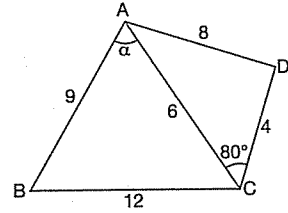


ABC ve EDF birer üçgen, $m(\widehat{ABC}) = 60^\circ$

olduğuna göre, $m(\widehat{EDF}) = \alpha$ kaç derecedir?

- A) 45 B) 60 C) 75 D) 90 E) 100

3.



ABCD bir dörtgen

$$m(\widehat{ACD}) = 80^\circ$$

$$|BC| = 12 \text{ cm}$$

$$|AB| = 9 \text{ cm}$$

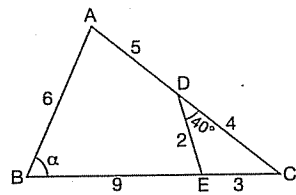
$$|AD| = 8 \text{ cm}$$

$$|AC| = 6 \text{ cm}, |DC| = 4 \text{ cm}$$

olduğuna göre, $m(\widehat{BAC}) = \alpha$ kaç derecedir?

- A) 40 B) 60 C) 70 D) 80 E) 100

2.



ABC bir üçgen

$$m(\widehat{EDC}) = 40^\circ$$

$$2|EC| = |AB| = 6 \text{ cm}$$

$$2|DE| = |DC| = 4 \text{ cm}$$

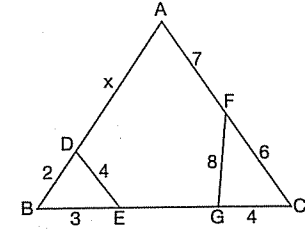
$$|AD| = 5 \text{ cm}$$

$$|BE| = 9 \text{ cm}$$

olduğuna göre, $m(\widehat{ABC}) = \alpha$ kaç derecedir?

- A) 20 B) 30 C) 40 D) 50 E) 60

4.



ABC bir üçgen

$$|FC| = 2|BE| = 6 \text{ cm}$$

$$|DE| = |GC| = 4 \text{ cm}$$

$$|DB| = 2 \text{ cm}$$

$$|AF| = 7 \text{ cm}$$

$$|FG| = 8 \text{ cm}$$

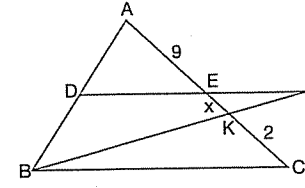
Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) 9 B) 10 C) 11 D) 12 E) 13

1. B 2. C 3. D 4. C

Benzerlik Karma - I

Örnek



ABC bir üçgen

$$[DF] \parallel [BC]$$

$$3|EF| = 2|DE|$$

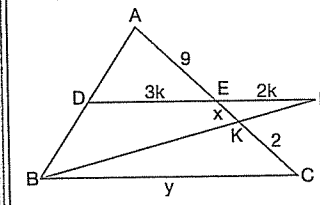
$$|AE| = 9 \text{ cm}$$

$$|KC| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|EK| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



$$2|DE| = 3|EF| \text{ ise,}$$

$$\frac{|DE|}{|EF|} = \frac{3}{2} \text{ olur.}$$

$$\widehat{EFK} \sim \widehat{CBK}$$

(Kelebek)

$$\frac{x}{2} = \frac{2k}{y} \Rightarrow \frac{k}{y} = \frac{x}{4} \dots I$$

$$\widehat{ADE} \sim \widehat{ABC} \text{ (Temel Benzerlik Teoremi)}$$

$$\frac{3k}{y} = \frac{9}{11+x} \Rightarrow \frac{k}{y} = \frac{9}{33+3x} \dots II$$

I ve II de

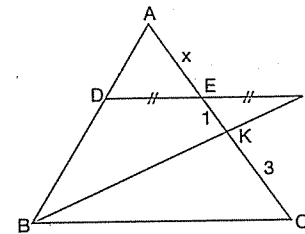
$$\frac{x}{4} = \frac{9}{33+3x} \Rightarrow 33x + 3x^2 = 36$$

$$\Rightarrow x^2 + 11x - 12 = 0 \Rightarrow x = 1$$

Cevap A

TEST - 21

1.



ABC bir üçgen

$$[DF] \parallel [BC]$$

$$|DE| = |EF|$$

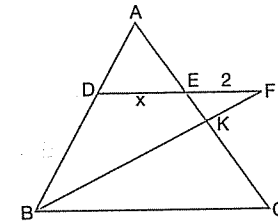
$$|KC| = 3 \text{ cm}$$

$$|EK| = 1 \text{ cm}$$

Yukarıdaki verilere göre, $|AE| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 6

3.



ABC bir üçgen

$$[DF] \parallel [BC]$$

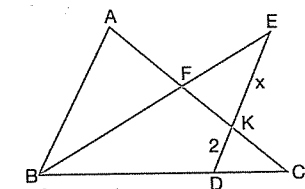
$$6|EK| = 3|AE| = 2|KC|$$

$$|EF| = 2 \text{ cm}$$

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

2.



ABC bir üçgen

$$[AB] \parallel [DE]$$

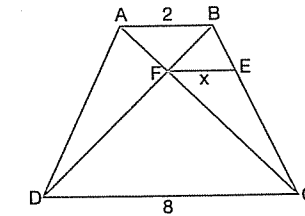
$$|AF| = 2|FK| = 2|KC|$$

$$|KD| = 2 \text{ br}$$

Yukarıdaki verilere göre, $|EK| = x$ kaç br dir?

- A) 8 B) 6 C) 5 D) 4 E) 2

4.



ABCD bir dörtgen

$$[AB] \parallel [EF] \parallel [DC]$$

$$|DC| = 8 \text{ cm}$$

$$|AB| = 2 \text{ cm}$$

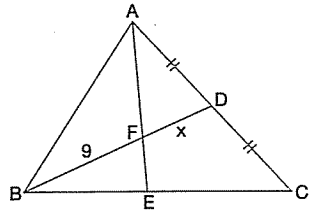
Yukarıdaki verilere göre, $|FE| = x$ kaç cm dir?

- A) $\frac{17}{5}$ B) $\frac{13}{5}$ C) $\frac{11}{5}$ D) $\frac{8}{5}$ E) $\frac{6}{5}$

1. B 2. D 3. B 4. D

Benzerlik Karma - II

Örnek

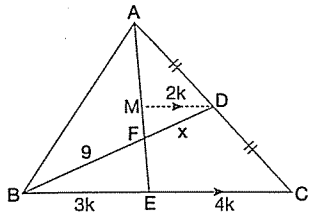


ABC bir üçgen
 $|AD| = |DC|$
 $3|EC| = 4|EB|$
 $|BF| = 9$ cm

Yukarıdaki verilere göre, $|FD| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 6 E) 7

Çözüm



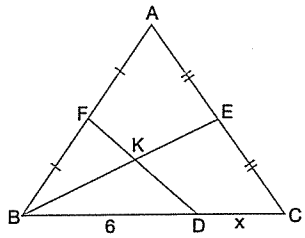
$3|EC| = 4|EB|$
 $\frac{|EC|}{|EB|} = \frac{4}{3}$
 $[MD] \parallel [BC]$ çizersek
 $|MD| = \frac{|EC|}{2} = 2k$ olur.
 (Orta taban)

$\widehat{FMD} \sim \widehat{FBE}$ (Kelebek) $\Rightarrow \frac{2k}{3k} = \frac{x}{9}$
 $\Rightarrow x = 6$ cm olur.

Cevap D

TEST - 22

1.

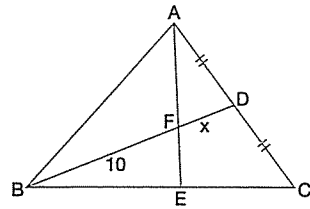


ABC bir üçgen
 $|AF| = |FB|$
 $|AE| = |EC|$
 $3|FK| = 2|KD|$
 $|BD| = 6$ cm

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) 6 B) 4 C) 3 D) 2 E) 1

3.

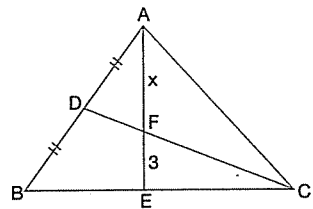


ABC bir üçgen
 $|AD| = |DC|$
 $4|BE| = 5|EC|$
 $|BF| = 10$ cm

Yukarıdaki verilere göre, $|FD| = x$ kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

2.

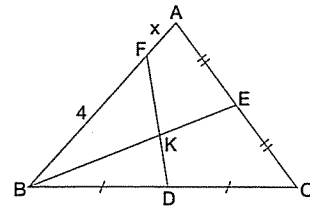


ABC bir üçgen
 $|AD| = |DB|$
 $3|DF| = |FC|$
 $|EF| = 3$ cm

Yukarıdaki verilere göre, $|AF| = x$ kaç cm dir?

- A) 3 B) 4 C) 5 D) 6 E) 7

4.



ABC bir üçgen
 $|AE| = |EC|$
 $|BD| = |DC|$
 $3|BK| = 4|KE|$
 $|BF| = 4$ cm

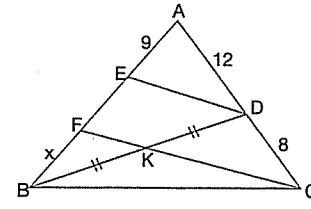
Yukarıdaki verilere göre, $|AF| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. D 2. C 3. B 4. B

Benzerlik Karma - III

Örnek

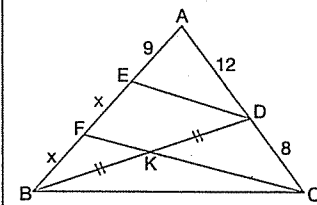


ABC bir üçgen
 $[ED] \parallel [FC]$
 $|BK| = |KD|$
 $|AD| = 12$ cm
 $|AE| = 9$ cm
 $|DC| = 8$ cm

Yukarıdaki verilere göre, $|BF| = x$ kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

Çözüm



$[ED] \parallel [FC]$
 olduğundan,
 $\widehat{BFK} \sim \widehat{BED}$
 (Temel Benzerlik)

$\frac{|BF|}{|FE|} = \frac{|BK|}{|KD|} \Rightarrow |FE| = x$ bulunur.

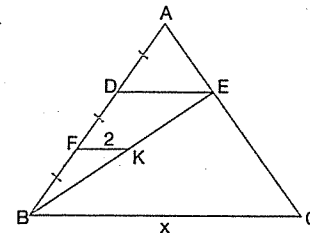
$\widehat{AED} \sim \widehat{AFC}$ (Temel Benzerlik)

$\frac{|AE|}{|EF|} = \frac{|AD|}{|DC|} \Rightarrow \frac{9}{x} = \frac{12}{8} \Rightarrow x = 6$ cm bulunur.

Cevap C

TEST - 23

1.

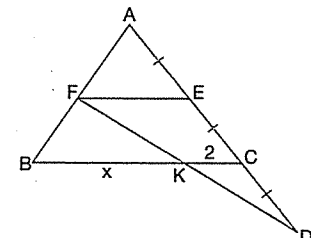


ABC bir üçgen
 $[DE] \parallel [FK] \parallel [BC]$
 $|AD| = |DF| = |FB|$
 $|FK| = 2$ cm

Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

3.

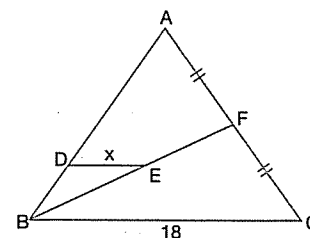


ABC bir üçgen
 $[FE] \parallel [BC]$
 $|AE| = |EC| = |CD|$
 $|KC| = 2$ cm

Yukarıdaki verilere göre, $|BK| = x$ kaç cm dir?

- A) 8 B) 6 C) 5 D) 4 E) 3

2.

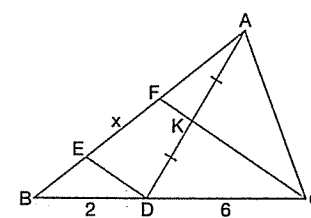


ABC bir üçgen
 $[DE] \parallel [BC]$
 $|AF| = |FC|$
 $2|BE| = |EF|$
 $|BC| = 18$ cm

Yukarıdaki verilere göre, $|DE| = x$ kaç cm dir?

- A) 6 B) 5 C) 4 D) 3 E) 2

4.



ABC bir üçgen
 $[FC] \parallel [ED]$
 $|AK| = |KD|$
 $|DC| = 6$ cm
 $|BD| = 2$ cm
 $|AB| = 7$ cm

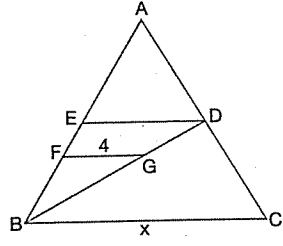
Yukarıdaki verilere göre, $|EF| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

1. E 2. D 3. B 4. C

Ağırlık Merkezinden Çizilen Paralel

Örnek

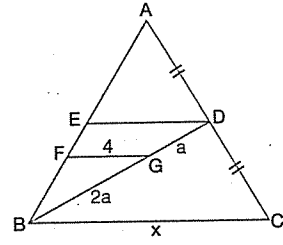


ABC bir üçgen
G, ağırlık merkezi
[ED] // [FG] // [BC]
[FG] = 4 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 10 B) 12 C) 14 D) 16 E) 18

Çözüm



[BD] kenarortay,
G ağırlık merkezi oldu-
ğundan,
|AD| = |DC|
 $\frac{|BG|}{|GD|} = 2$ olur.

BED üçgeninde temel benzerlik teoremine göre,

$$\frac{|BG|}{|BD|} = \frac{|FG|}{|ED|} \Rightarrow \frac{2a}{3a} = \frac{4}{|ED|} \Rightarrow |ED| = 6 \text{ cm olur.}$$

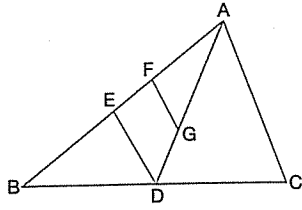
ABC üçgeninde [ED] orta taban olduğundan,

$$|ED| = \frac{|BC|}{2} \Rightarrow 6 = \frac{|BC|}{2} \Rightarrow |BC| = 12 \text{ cm bulunur.}$$

Cevap B

TEST - 24

1.

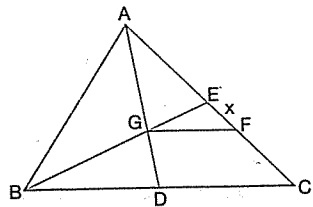


ABC bir üçgen
G, ağırlık merkezi
[ED] // [FG] // [AC]

Yukarıdaki verilere göre, $\frac{|GF|}{|AC|}$ oranı kaçtır?

- A) $\frac{1}{3}$ B) $\frac{2}{5}$ C) $\frac{1}{2}$ D) $\frac{3}{5}$ E) $\frac{3}{4}$

2.

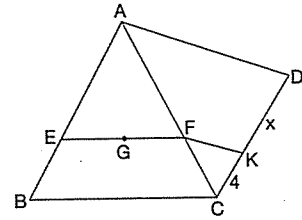


ABC bir üçgen
G, ağırlık merkezi
[GF] // [BC]
[AC] = 12 cm

Yukarıdaki verilere göre, |EF| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

3.

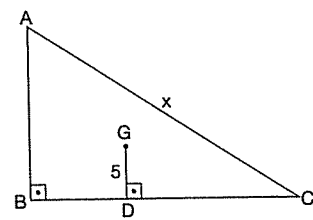


ABC ve ACD
birebir üçgen
G, ABC üçgenin
ağırlık merkezi
[EF] // [BC]
[FK] // [AD]
[CK] = 4 cm

Yukarıdaki verilere göre, |DK| = x kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

4.



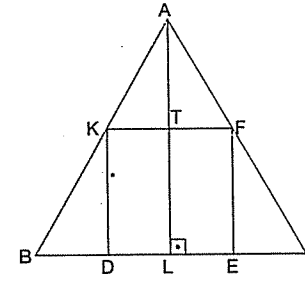
ABC bir dik üçgen
G, ağırlık merkezi
[AB] ⊥ [BC]
[GD] ⊥ [BC]
[GD] = 5 cm
[BC] = 20 cm

Yukarıdaki verilere göre, |AC| = x kaç cm dir?

- A) 15 B) 18 C) 20 D) 25 E) 27

Benzerlik Özelliği - I

Örnek

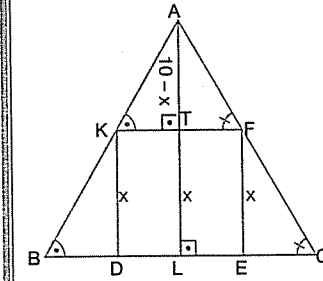


ABC bir üçgen
KDEF bir kare
[AL] ⊥ [BC]
|AL| = 10 cm
|BC| = 12 cm

olduğuna göre, karenin bir kenarı kaç cm dir?

- A) $\frac{45}{11}$ B) $\frac{50}{11}$ C) $\frac{60}{11}$ D) $\frac{65}{11}$ E) $\frac{70}{11}$

Çözüm



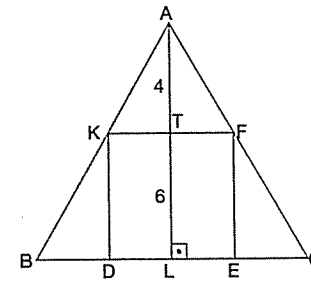
$\widehat{AKF} \sim \widehat{ABC}$
(Benzer üçgenle-
rin, açıortaylarının,
kenarortaylarının ve
yüksekliklerinin oranla-
rı üçgenlerin benzerlik
oranına eşittir.)

$$\frac{|AT|}{|AL|} = \frac{|KF|}{|BC|} \Rightarrow \frac{10-x}{10} = \frac{x}{12} \Rightarrow x = \frac{60}{11} \text{ cm dir.}$$

Cevap C

TEST - 25

1.

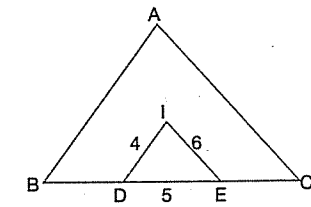


ABC bir üçgen
KDEF bir kare
[AL] ⊥ [BC]
|TL| = 6 cm
|AT| = 4 cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) 9 B) 12 C) 15 D) 18 E) 21

3.



ABC bir üçgen
I, iç teğet çembe-
rin merkezi
[DI] // [BA]
[IE] // [AC]

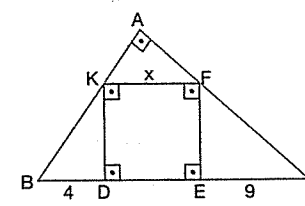
|IE| = 6 cm, |DE| = 5 cm, |DI| = 4 cm

Yukarıdaki verilere göre, Ç(ABC) kaç cm dir?

- A) 15 B) 25 C) 30 D) 35 E) 45

İpucu : Benzer iki üçgenin çevreleri oranı benzerlik oranına eşittir.

2.

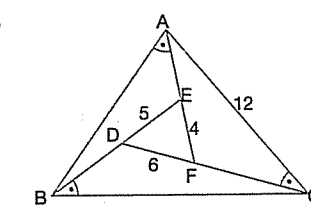


ABC bir dik
üçgen
DEFK bir kare
[BA] ⊥ [AC]
[EC] = 9 cm
[BD] = 4 cm

Yukarıdaki verilere göre, |KF| = x kaç cm dir?

- A) 12 B) 10 C) 8 D) 6 E) 5

4.



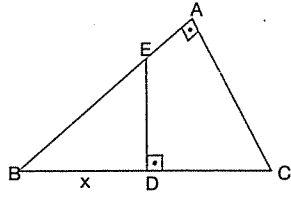
ABC bir üçgen
[AC] = 12 cm
[DF] = 6 cm
[DE] = 5 cm
[EF] = 4 cm

$m(\widehat{BAF}) = m(\widehat{EBC}) = m(\widehat{ACD})$ olduğuna göre,
Ç(ABC) kaç cm dir?

- A) 30 B) 36 C) 42 D) 48 E) 54

Benzer Üçgenlerin Alanlarının Oranı

Örnek

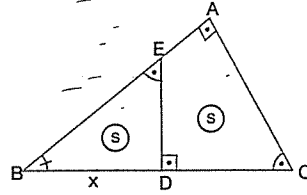


ABC dik üçgen
[AB] ⊥ [AC]
[ED] ⊥ [BC]
|AB| = 6 cm
A(EBD) = A(DCAE)

Yukarıdaki verilere göre, |BD| = x kaç cm dir?

- A) $3\sqrt{3}$ B) $3\sqrt{2}$ C) $4\sqrt{3}$
D) $4\sqrt{2}$ E) $5\sqrt{2}$

Çözüm



$\widehat{ABC} \sim \widehat{DBE}$ dir.
Benzer üçgenle-
rin alanları oranı,
benzerlik oranının
karesine eşittir.

$$\frac{A(ABC)}{A(DBE)} = \left(\frac{|AB|}{|BD|}\right)^2 \Rightarrow \frac{2S}{S} = \left(\frac{6}{x}\right)^2$$

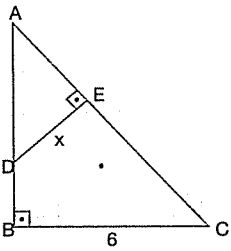
$$\Rightarrow \sqrt{2} = \frac{6}{x}$$

$$\Rightarrow x = 3\sqrt{2} \text{ bulunur.}$$

Cevap B

TEST - 26

1.

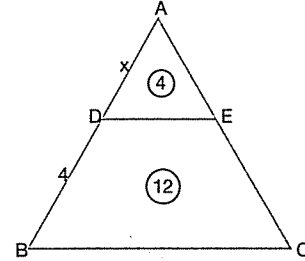


ABC dik üçgen
[AB] ⊥ [BC]
[DE] ⊥ [AC]
A(BCED) = 8A(ADE)
|BC| = 6 cm

Yukarıdaki verilere göre, |DE| = x kaç cm dir?

- A) 3 B) $2\sqrt{2}$ C) 2 D) $\sqrt{2}$ E) 1

3.

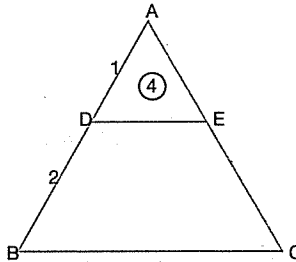


ABC bir üçgen
[DE] // [BC]
A(ADE) = 4 cm²
A(BCDE) = 12 cm²
|BD| = 4 cm

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

2.

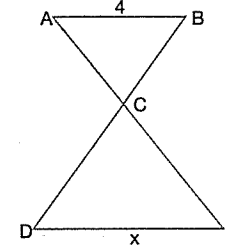


ABC bir üçgen
[DE] // [BC]
|AD| = 1 cm
|DB| = 2 cm
A(ADE) = 4 cm²

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 16 B) 24 C) 32 D) 36 E) 40

4.



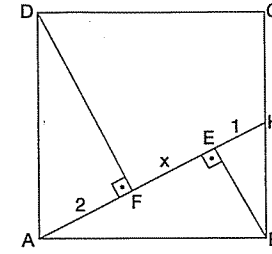
A, C, E ve B, C, D
doğrusal
[AB] // [DE]
4A(DCE) = 9A(ABC)
|AB| = 4 cm

Yukarıdaki verilere göre, |DE| = x kaç cm dir?

- A) 9 B) 8 C) 6 D) 5 E) 4

Eş Üçgenler

Örnek

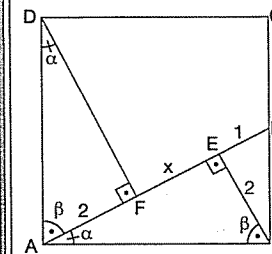


ABCD bir kare
[DF] ⊥ [AK]
[EB] ⊥ [AK]
|AF| = 2 cm
|EK| = 1 cm

Yukarıdaki verilere göre, |FE| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



AFD ve BEA üçgenlerinin
açıları eş ve hipotenüs
uzunlukları eşit olduğuna
göre,
 $\widehat{AFD} \cong \widehat{BEA}$
(Eş Üçgenler)

|BE| = |AF| = 2 cm

Öklit teoreminden, |EB|² = |EK| · |AE|

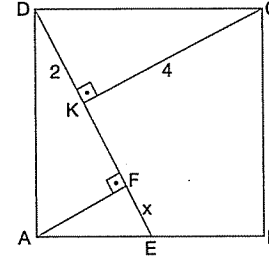
$$\Rightarrow 2^2 = 1 \cdot (2 + x)$$

$$\Rightarrow x = 2 \text{ cm bulunur.}$$

Cevap B

TEST - 27

1.

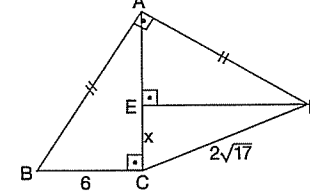


ABCD bir kare
[AF] ⊥ [DE]
[KC] ⊥ [DE]
|KC| = 4 cm
|DK| = 2 cm

Yukarıdaki verilere göre, |FE| = x kaç cm dir?

- A) 6 B) 4 C) 3 D) 2 E) 1

3.

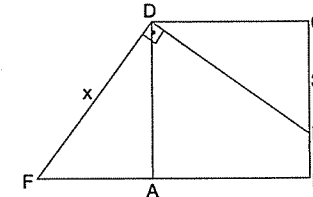


[AB] ⊥ [AD]
[BC] ⊥ [AC]
[AE] ⊥ [ED]
|AB| = |AD|
|BC| = 6 cm
|CD| = $2\sqrt{17}$ cm

Yukarıdaki verilere göre, |EC| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

2.

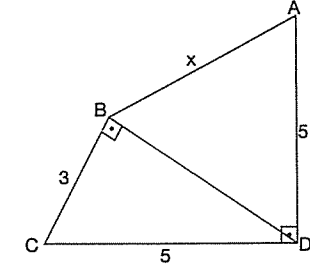


ABCD bir kare
[DF] ⊥ [DE]
|CE| = 3 cm
|EB| = 1 cm

Yukarıdaki verilere göre, |FD| = x kaç cm dir?

- A) 4 B) 5 C) 6 D) 7 E) 8

4.



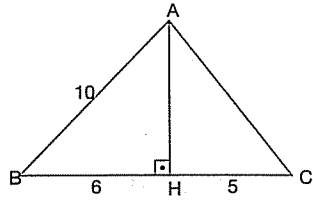
[AD] ⊥ [CD]
[BC] ⊥ [BD]
|AD| = 5 cm
|CD| = 5 cm
|BC| = 3 cm

Yukarıdaki verilere göre, |AB| = x kaç cm dir?

- A) $\sqrt{11}$ B) $\sqrt{13}$ C) $\sqrt{15}$ D) $\sqrt{17}$ E) $\sqrt{19}$

Dar Açılı Üçgenin Alanı - I

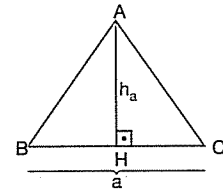
Örnek



ABC bir üçgen
[AH] ⊥ [BC]
|AB| = 10 cm
|BH| = 6 cm
|HC| = 5 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

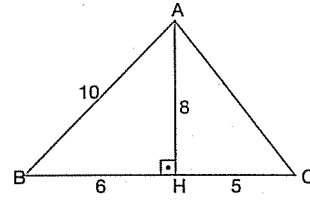
- A) 32 B) 36 C) 40 D) 44 E) 54



Bir üçgenin alanı bir kenarı ile bu kenara ait yüksekliğin çarpımının yarısına eşittir.

$$A(ABC) = \frac{a \cdot h_a}{2}$$

Çözüm



ABH üçgeninde
|AH| = 8 cm
(6 - 8 - 10)

$$A(ABC) = \frac{|BC| \cdot |AH|}{2}$$

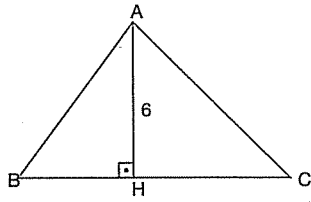
$$= \frac{11 \cdot 8}{2}$$

$$= 44 \text{ cm}^2 \text{ olur.}$$

Cevap D

TEST - 1

1.

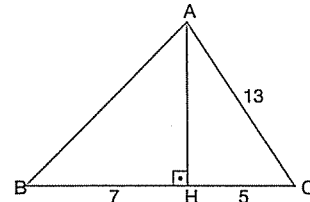


ABC bir üçgen
[AH] ⊥ [BC]
|BC| = 9 cm
|AH| = 6 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 21 B) 24 C) 27 D) 30 E) 33

3.

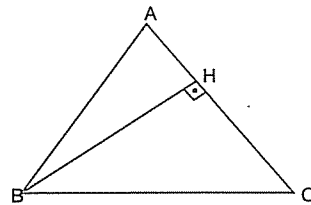


ABC bir üçgen
[AH] ⊥ [BC]
|AC| = 13 cm
|BH| = 7 cm
|HC| = 5 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 40 B) 48 C) 56 D) 64 E) 72

2.

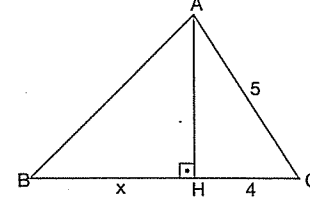


ABC bir üçgen
[BH] ⊥ [AC]
|BH| = 8 cm
|AC| = 10 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 32 B) 40 C) 48 D) 56 E) 64

4.



ABC bir üçgen
A(ABC) = 18 br²
[AH] ⊥ [BC]
|AC| = 5 br
|HC| = 4 br

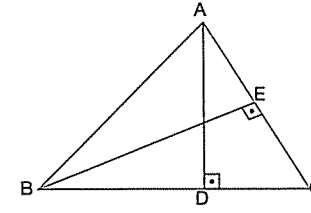
Yukarıdaki verilere göre, |BH| = x kaç br dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

1. C 2. B 3. E 4. D

Dar Açılı Üçgenin Alanı - II

Örnek

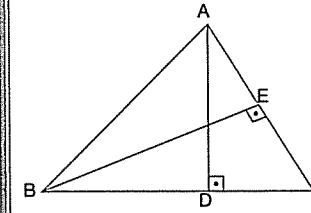


ABC bir üçgen
[AD] ⊥ [BC]
[BE] ⊥ [AC]
|BC| = 16 br
|AC| = 12 br
|AD| = 6 br

Yukarıdaki verilere göre, |BE| kaç br dir?

- A) 8 B) 7 C) 6 D) 5 E) 4

Çözüm



|BC| = a = 16
|AD| = h_a = 6
|AC| = b = 12
|BE| = h_b

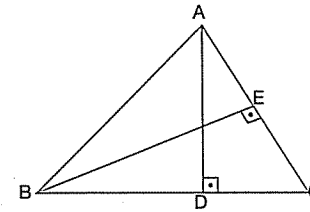
$$A(ABC) = \frac{a \cdot h_a}{2} = \frac{b \cdot h_b}{2} \Rightarrow \frac{16 \cdot 6}{2} = \frac{12 \cdot h_b}{2}$$

$$\Rightarrow h_b = 8 \text{ br olur.}$$

Cevap A

TEST - 2

1.

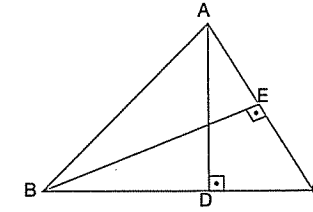


ABC bir üçgen
[AD] ⊥ [BC]
[BE] ⊥ [AC]
|BC| = 12 br
|AC| = 9 br
|BE| = 8 br

Yukarıdaki verilere göre, |AD| kaç br dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

3.

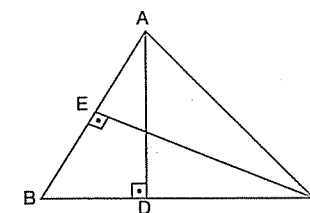


ABC bir üçgen
|BC| = 18 cm
|AC| = 12 cm
A(ABC) = 72 cm²

Yukarıdaki verilere göre, h_a + h_b kaç cm dir?

- A) 20 B) 24 C) 28 D) 32 E) 36

2.

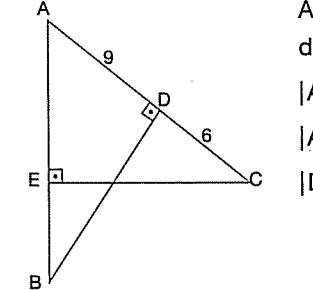


ABC bir üçgen
[AD] ⊥ [BC]
[CE] ⊥ [AB]
|AB| = 15 cm
|EC| = 6 cm
|AD| = 5 cm

Yukarıdaki verilere göre, |BC| kaç cm dir?

- A) 12 B) 14 C) 16 D) 18 E) 20

4.



AEC ve ABD
dik üçgen
|AB| = 15 cm
|AD| = 9 cm
|DC| = 6 cm

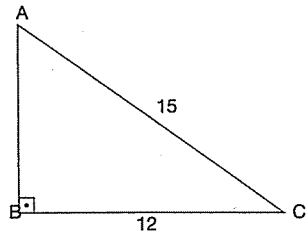
Yukarıdaki verilere göre, |CE| kaç cm dir?

- A) 9 B) 12 C) 15 D) 18 E) 21

1. C 2. D 3. A 4. B

Dik Üçgenin Alanı - I

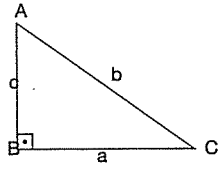
Örnek



ABC dik üçgen
 $[AB] \perp [BC]$
 $|AC| = 15$ cm
 $|BC| = 12$ cm

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 54 B) 45 C) 40 D) 36 E) 27

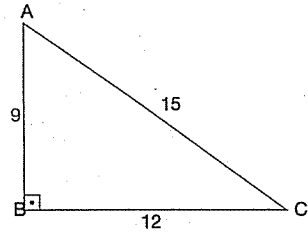


Bir dik üçgenin alanı, dik kenar uzunluklarının çarpımının yarısına eşittir.

$$A(ABC) = \frac{a \cdot c}{2}$$



Çözüm



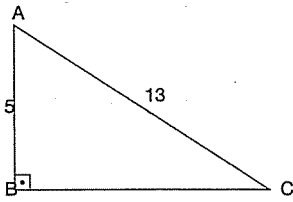
ABC dik üçgeninde
 $|AB| = 9$ cm
 $(3k - 4k - 5k)$

$$A(ABC) = \frac{9 \cdot 12}{2} = 54 \text{ cm}^2 \text{ olur.}$$

Cevap A

TEST - 3

1.

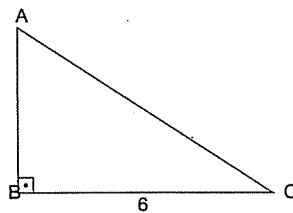


ABC dik üçgen
 $[AB] \perp [BC]$
 $|AC| = 13$ cm
 $|AB| = 5$ cm

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 20 B) 30 C) 40 D) 50 E) 60

2.

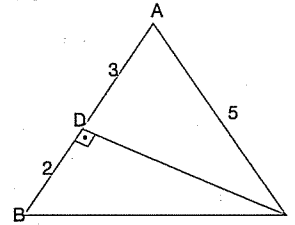


ABC dik üçgen
 $[AB] \perp [BC]$
 $|BC| = 6$ br
 $A(ABC) = 9 \text{ br}^2$

Yukarıdaki verilere göre, $|AC|$ kaç br dir?

- A) $\sqrt{5}$ B) $2\sqrt{5}$ C) $3\sqrt{5}$ D) $4\sqrt{5}$ E) $5\sqrt{5}$

3.

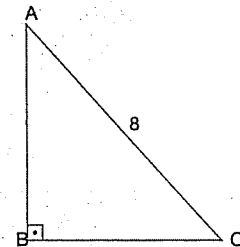


ABC bir üçgen
 $[CD] \perp [AB]$
 $|AC| = 5$ cm
 $|AD| = 3$ cm
 $|DB| = 2$ cm

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

4.



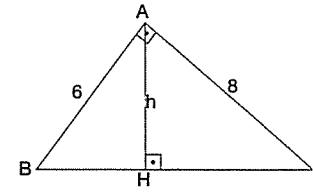
ABC dik üçgen
 $[AB] \perp [BC]$
 $|AC| = 8$ cm
 $\angle(ABC) = 18$ cm

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 9 B) 12 C) 15 D) 18 E) 21

Dik Üçgenin Alanı - II

Örnek



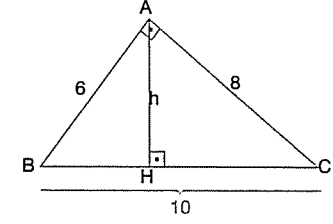
ABC bir üçgen
 $[AB] \perp [AC]$
 $[AH] \perp [BC]$
 $|AC| = 8$ cm
 $|AB| = 6$ cm

Yukarıdaki verilere göre, $|AH| = h$ kaç cm dir?

- A) 3,2 B) 3,6 C) 4,8 D) 7,2 E) 9,6



Çözüm



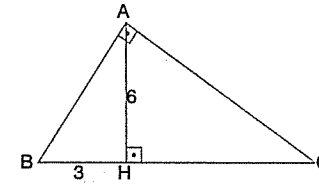
$$A(ABC) = \frac{b \cdot c}{2} = \frac{a \cdot h}{2}$$

$$= \frac{8 \cdot 6}{2} = \frac{10 \cdot h}{2} \Rightarrow h = 4.8 \text{ cm olur.}$$

Cevap C

TEST - 4

1.

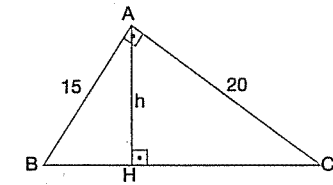


ABC dik üçgen
 $[AB] \perp [AC]$
 $[AH] \perp [BC]$
 $|AH| = 6$ br
 $|BH| = 3$ br

Yukarıdaki verilere göre, $A(AHC)$ kaç br^2 dir?

- A) 30 B) 36 C) 42 D) 48 E) 54

3.

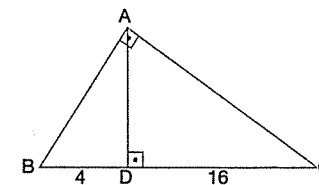


ABC dik üçgen
 $[AB] \perp [AC]$
 $[AH] \perp [BC]$
 $|AB| = 15$ cm
 $|AC| = 20$ cm

Yukarıdaki verilere göre, $|AH| = h$ kaç cm dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

2.

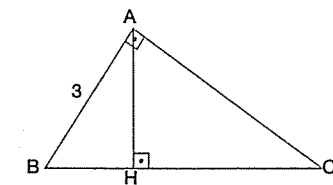


ABC dik üçgen
 $[AB] \perp [AC]$
 $[AD] \perp [BC]$
 $|BD| = 4$ cm
 $|DC| = 16$ cm

Yukarıdaki verilere göre, $A(ABD)$ kaç cm^2 dir?

- A) 8 B) 12 C) 16 D) 20 E) 24

4.



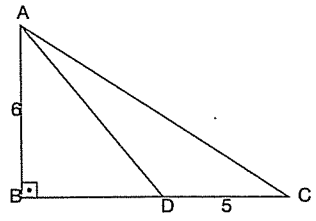
ABC dik üçgen
 $[AB] \perp [AC]$
 $[AH] \perp [BC]$
 $|AB| = 3$ br
 $|BC| = 5$ br

Yukarıdaki verilere göre, $|AH|$ kaç br dir?

- A) 1,8 B) 2,4 C) 3,6 D) 4,8 E) 5,4

Geniş Açılı Üçgenin Alanı - I

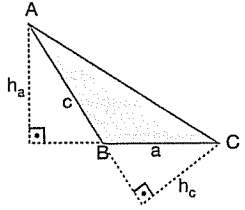
Örnek



ABC dik üçgen
[AB] ⊥ [BC]
|AB| = 6 br
|DC| = 5 br

Yukarıdaki verilere göre, A(ADC) kaç br² dir?

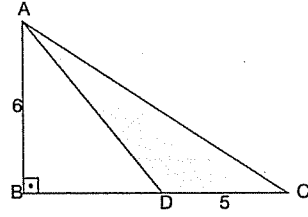
- A) 8 B) 10 C) 12 D) 15 E) 18



$$A(ADC) = \frac{a \cdot h_a}{2} = \frac{c \cdot h_c}{2}$$



Çözüm



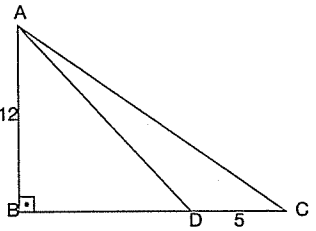
$$A(ADC) = \frac{5 \cdot 6}{2}$$

$$A(ADC) = 15 \text{ br}^2$$

Cevap D

TEST - 5

1.

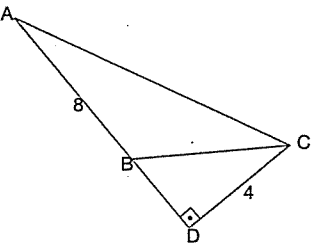


ABC dik üçgen
[AB] ⊥ [BC]
|AB| = 12 br
|DC| = 5 br

Yukarıdaki verilere göre, A(ADC) kaç br² dir?

- A) 25 B) 27 C) 30 D) 35 E) 38

2.

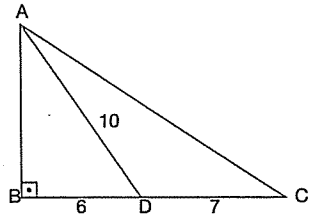


ADC dik üçgen
[AD] ⊥ [DC]
|AB| = 8 cm
|DC| = 4 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 8 B) 12 C) 14 D) 16 E) 20

3.

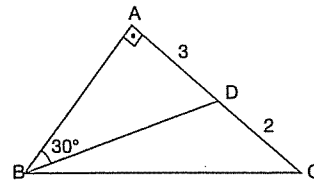


ABC dik üçgen
[AB] ⊥ [BC]
|AD| = 10 cm
|DC| = 7 cm
|BD| = 6 cm

Yukarıdaki verilere göre, A(ADC) kaç cm² dir?

- A) 28 B) 30 C) 34 D) 36 E) 40

4.



ABC dik üçgen
[AB] ⊥ [AC]
 $m(\widehat{ABD}) = 30^\circ$
|AD| = 3 cm
|DC| = 2 cm

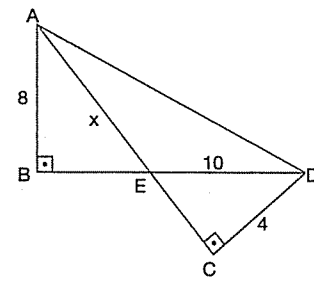
Yukarıdaki verilere göre, A(BDC) kaç cm² dir?

- A) $3\sqrt{3}$ B) $4\sqrt{3}$ C) $6\sqrt{3}$ D) $8\sqrt{3}$ E) $9\sqrt{3}$

1. C 2. D 3. A 4. A

Geniş Açılı Üçgenin Alanı - II

Örnek



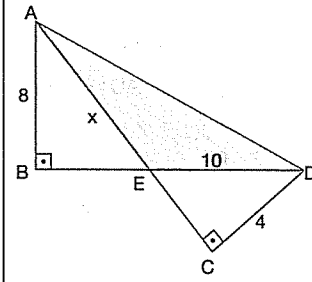
ABD ve ACD
dik üçgen
[AB] ⊥ [BD]
[AC] ⊥ [DC]
|ED| = 10 cm
|AB| = 8 cm
|DC| = 4 cm

Yukarıdaki verilere göre, |AE| = x kaç cm dir?

- A) 22 B) 20 C) 18 D) 15 E) 12



Çözüm



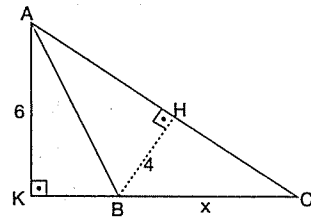
$$A(AED) = \frac{10 \cdot 8}{2} = \frac{x \cdot 4}{2}$$

$$x = 20 \text{ cm olur.}$$

Cevap B

TEST - 6

1.

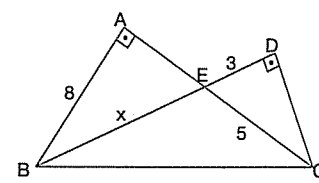


AKC dik üçgen
[AK] ⊥ [KC]
[BH] ⊥ [AC]
|AC| = 18 cm
|AK| = 6 cm
|BH| = 4 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

3.

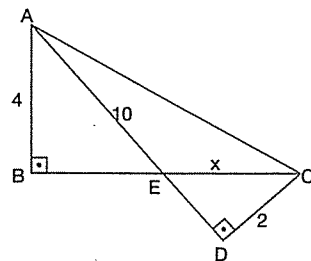


ABC ve BDC
dik üçgen
|AB| = 8 cm
|EC| = 5 cm
|ED| = 3 cm

Yukarıdaki verilere göre, |BE| = x kaç cm dir?

- A) 8 B) 10 C) 12 D) 14 E) 16

2.

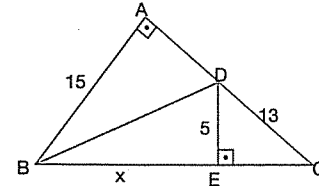


ABC ve ADC
dik üçgen
|AE| = 10 br
|AB| = 4 br
|DC| = 2 br

Yukarıdaki verilere göre, |EC| = x kaç br dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

4.



ABC dik üçgen
[DE] ⊥ [BC]
|AB| = 15 cm
|DC| = 13 cm
|DE| = 5 cm

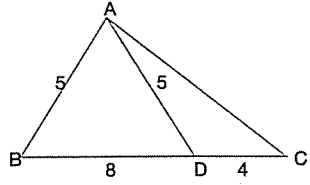
Yukarıdaki verilere göre, |BE| = x kaç cm dir?

- A) 20 B) 24 C) 27 D) 30 E) 34

1. D 2. E 3. B 4. C

İkizkenar Üçgenin Alanı

Örnek

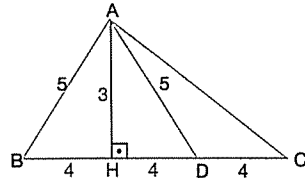


ABC bir üçgen
|BD| = 8 br
|AB| = |AD| = 5 br
|DC| = 4 br

Yukarıdaki verilene göre, A(ABC) kaç cm² dir?

- A) 16 B) 18 C) 20 D) 22 E) 24

Çözüm



ABD ikizkenar
üçgeninde
[AH] ⊥ [BC] indirirsek
|BH| = |HD| = 4 br ve
|AH| = 3 br olur.

$$A(ABD) = \frac{8 \cdot 3}{2} = 12 \text{ br}^2$$

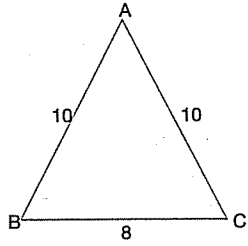
$$A(ADC) = \frac{4 \cdot 3}{2} = 6 \text{ br}^2$$

$$\Rightarrow A(ABC) = 12 + 6 = 18 \text{ br}^2 \text{ olur.}$$

Cevap B

TEST - 7

1.

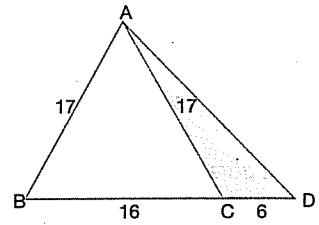


ABC ikizkenar üçgen
|AB| = |AC| = 10 cm
|BC| = 8 cm

Yukarıdaki verilene göre, A(ABC) kaç cm² dir?

- A) $4\sqrt{21}$ B) $6\sqrt{21}$ C) $8\sqrt{21}$
D) $10\sqrt{21}$ E) $12\sqrt{21}$

2.

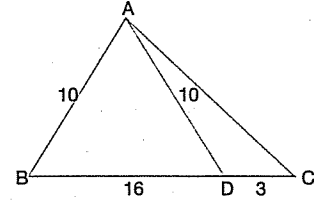


ABD bir üçgen
|AB| = 17 cm
|AC| = 17 cm
|BC| = 16 cm
|CD| = 6 cm

Yukarıdaki verilene göre, A(ACD) kaç cm² dir?

- A) 38 B) 42 C) 45 D) 48 E) 52

3.

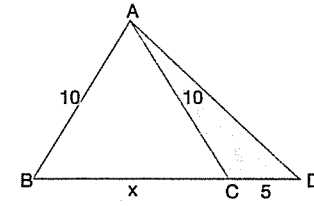


ABC bir üçgen
|BD| = 16 cm
|AB| = 10 cm
|AD| = 10 cm
|DC| = 3 cm

Yukarıdaki verilene göre, A(ADC) kaç cm² dir?

- A) 6 B) 9 C) 12 D) 16 E) 20

4.



ABD bir üçgen
|AB| = 10 cm
|AC| = 10 cm
|CD| = 5 cm
A(ACD) = 20 cm²

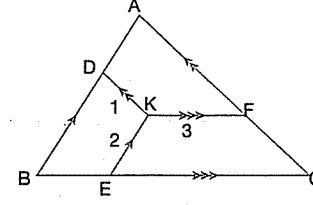
Yukarıdaki verilene göre, |BC| = x kaç cm dir?

- A) 12 B) 14 C) 18 D) 21 E) 24

1. C 2. C 3. B 4. A

Eşkenar Üçgenin Alanı

Örnek

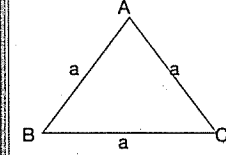


ABC bir üçgen
[DK] // [AC]
[KF] // [BC]
[KE] // [AB]
|KF| = 3 cm
|KE| = 2 cm
|DK| = 1 cm

Yukarıdaki verilene göre, A(ABC) kaç cm² dir?

- A) 3 B) $4\sqrt{3}$ C) 9
D) $9\sqrt{3}$ E) $12\sqrt{3}$

Çözüm



ABC eşkenar üçgenin
bir kenarı a olmak üzere,
 $A(ABC) = \frac{a^2 \sqrt{3}}{4}$ tür.

Bir eşkenar üçgenin içindeki herhangi bir noktadan kenarlara çizilen paralellerin uzunlukları toplamı bir kenarın uzunluğuna eşit olduğundan;

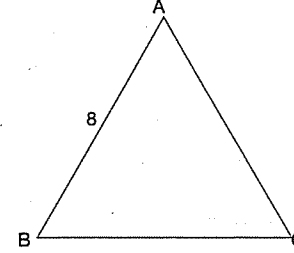
$$a = |KF| + |KE| + |DK| = 6$$

$$\Rightarrow A(ABC) = \frac{6^2 \sqrt{3}}{4} = 9\sqrt{3} \text{ cm}^2 \text{ olur.}$$

Cevap D

TEST - 8

1.

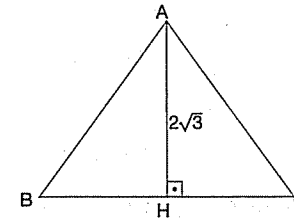


ABC eşkenar
üçgen
|AB| = 8 cm

Yukarıdaki verilene göre, A(ABC) kaç cm² dir?

- A) $10\sqrt{3}$ B) $12\sqrt{3}$ C) 14
D) 16 E) $16\sqrt{3}$

2.

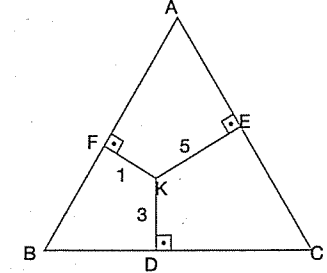


ABC eşkenar
üçgen
|AH| = $2\sqrt{3}$ cm

Yukarıdaki verilene göre, A(ABC) kaç cm² dir?

- A) $2\sqrt{3}$ B) $4\sqrt{3}$ C) 6
D) $8\sqrt{3}$ E) 12

3.

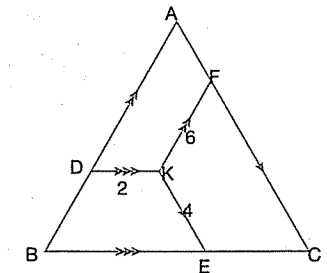


ABC eşkenar
üçgen
[KE] ⊥ [AC]
[KF] ⊥ [AB]
[KD] ⊥ [BC]
|KE| = 5 cm
|KD| = 3 cm
|KF| = 1 cm

Yukarıdaki verilene göre, A(ABC) kaç cm² dir?

- A) $18\sqrt{3}$ B) $21\sqrt{3}$ C) $24\sqrt{3}$
D) $27\sqrt{3}$ E) $30\sqrt{3}$

4.



ABC eşkenar
üçgen
[KF] // [AB]
[KE] // [AC]
[DK] // [BC]
|KF| = 6 br
|KE| = 4 br
|DK| = 2 br

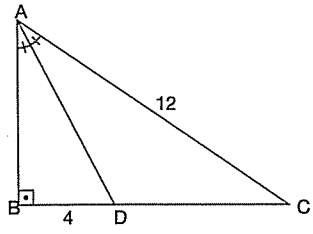
Yukarıdaki verilene göre, A(ABC) kaç br² dir?

- A) 27 B) 36 C) $36\sqrt{3}$
D) $42\sqrt{3}$ E) $45\sqrt{3}$

1. E 2. B 3. D 4. C

Alan - Açıortay

Örnek

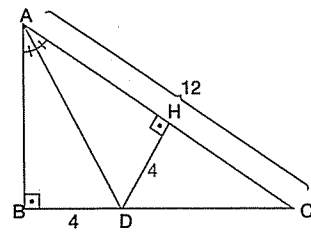


ABC dik üçgen
 $[AB] \perp [BC]$
 $[AD]$ açıortay
 $|AC| = 12$ cm
 $|BD| = 4$ cm

Yukarıdaki verilere göre, $A(ADC)$ kaç cm^2 dir?

- A) 12 B) 16 C) 20 D) 24 E) 28

Çözüm



$[DH] \perp [AC]$
 çizersek
 $[AD]$ açıortay
 olduğundan,
 $|BD| = |DH| = 4$ cm
 olur.

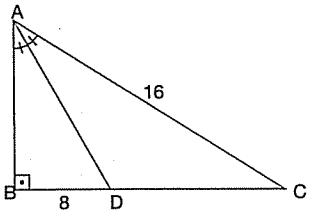
$$A(ADC) = \frac{12 \cdot 4}{2}$$

$$A(ADC) = 24 \text{ cm}^2 \text{ olur.}$$

Cevap D

TEST - 9

1.

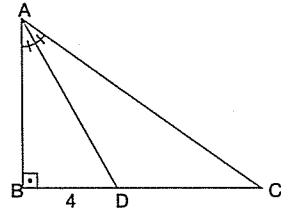


ABC dik üçgen
 $[AB] \perp [BC]$
 $[AD]$ açıortay
 $|AC| = 16$ cm
 $|BD| = 8$ cm

Yukarıdaki verilere göre, $A(ADC)$ kaç cm^2 dir?

- A) 56 B) 64 C) 68 D) 72 E) 80

3.

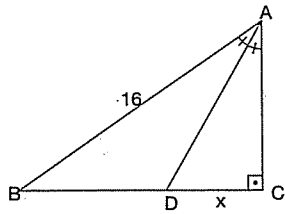


ABC dik üçgen
 $[AB] \perp [BC]$
 $[AD]$ açıortay
 $|AB| + |AC| = 16$ cm
 $|BD| = 4$ cm

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 16 B) 24 C) 32 D) 36 E) 44

2.

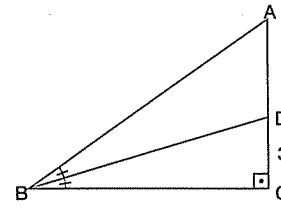


ABC dik üçgen
 $[AC] \perp [BC]$
 $[AD]$ açıortay
 $|AB| = 16$ cm
 $A(ABD) = 48 \text{ cm}^2$

Yukarıdaki verilere göre, $|DC| = x$ kaç cm dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

4.



ABC dik üçgen
 $[AC] \perp [BC]$
 $[BD]$ açıortay
 $|DC| = 3$ cm
 $A(ABD) = 15 \text{ cm}^2$

Yukarıdaki verilere göre, $|AB|$ kaç cm dir?

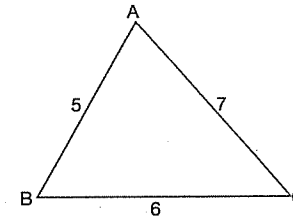
- A) 7 B) 8 C) 9 D) 10 E) 11

sonuç yayınları

1. B 2. C 3. C 4. D

Üç Kenarı Verilen Üçgenin Alanı - I

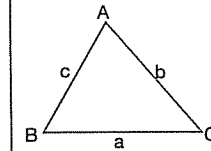
Örnek



ABC bir üçgen
 $|AC| = 7$ cm
 $|BC| = 6$ cm
 $|AB| = 5$ cm

Yukarıdaki verilere göre, h_a kaç cm dir?

- A) $2\sqrt{3}$ B) 4 C) $3\sqrt{2}$ D) $2\sqrt{5}$ E) $2\sqrt{6}$

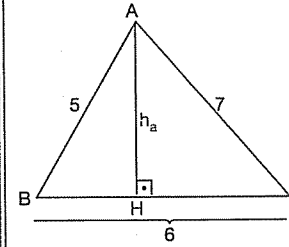


Üç kenarı verilen üçgenin alanı;

$$u = \frac{a+b+c}{2} \text{ olmak üzere,}$$

$A(ABC) = \sqrt{u(u-a)(u-b)(u-c)}$ formülü ile bulunur.

Çözüm



$$u = \frac{5+6+7}{2} \Rightarrow u = 9$$

$$A(ABC) = \sqrt{9(9-7)(9-6)(9-5)} \\ = \sqrt{9 \cdot 2 \cdot 3 \cdot 4} \\ = 6\sqrt{6} \text{ cm}^2 \text{ olur.}$$

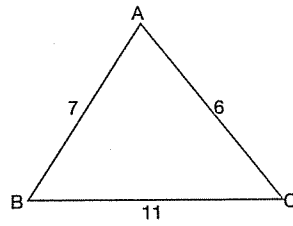
$$\text{Aynı zamanda } A(ABC) = \frac{6 \cdot h_a}{2} \Rightarrow 6\sqrt{6} = \frac{6 \cdot h_a}{2}$$

$$\Rightarrow h_a = 2\sqrt{6} \text{ cm olur.}$$

Cevap E

TEST - 10

1.

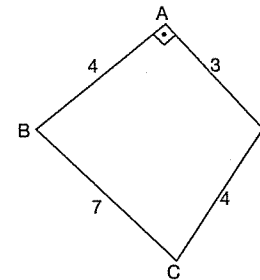


ABC bir üçgen
 $|BC| = 11$ cm
 $|AB| = 7$ cm
 $|AC| = 6$ cm

Yukarıdaki verilere göre, h_b kaç cm dir?

- A) $\sqrt{10}$ B) $2\sqrt{10}$ C) 7 D) $5\sqrt{2}$ E) 8

3.

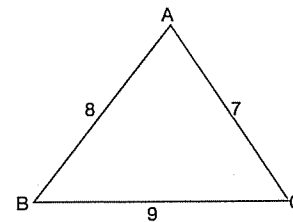


ABCD bir dörtgen
 $[AB] \perp [AD]$
 $|BC| = 7$ br
 $|AB| = |CD| = 4$ br
 $|AD| = 3$ br

Yukarıdaki verilere göre, $A(ABCD)$ kaç br^2 dir?

- A) $2 + 2\sqrt{6}$ B) $6 + 2\sqrt{6}$ C) $4 + 4\sqrt{6}$
 D) $4 + 6\sqrt{6}$ E) $6 + 4\sqrt{6}$

2.

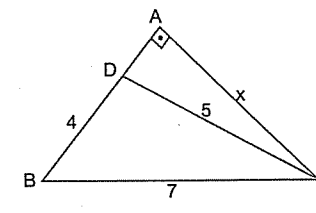


ABC bir üçgen
 $|BC| = 9$ cm
 $|AB| = 8$ cm
 $|AC| = 7$ cm

Yukarıdaki verilere göre, h_c kaç cm dir?

- A) $\sqrt{5}$ B) $2\sqrt{5}$ C) $3\sqrt{5}$ D) $4\sqrt{5}$ E) $6\sqrt{5}$

4.



ABC dik üçgen
 $[AB] \perp [AC]$
 $|BC| = 7$ cm
 $|DC| = 5$ cm
 $|DB| = 4$ cm

Yukarıdaki verilere göre, $|AC| = x$ kaç cm dir?

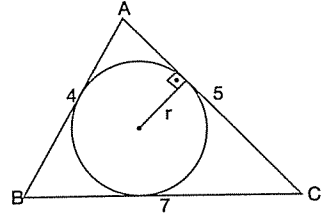
- A) 2 B) $2\sqrt{3}$ C) 4 D) $2\sqrt{6}$ E) 6

sonuç yayınları

1. B 2. C 3. E 4. D

Üç Kenarı Verilen Üçgenin Alanı - II

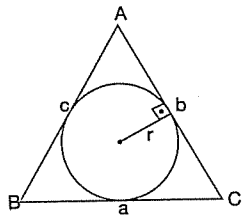
Örnek



ABC bir üçgen
|BC| = 7 cm
|AC| = 5 cm
|AB| = 4 cm

Yukarıdaki verilere göre, ABC üçgeninin iç teğet çemberinin yarıçapı kaç cm dir?

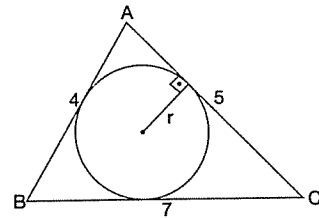
- A) 1 B) $\frac{\sqrt{6}}{2}$ C) $\sqrt{6}$ D) $2\sqrt{3}$ E) 4



İç teğet çemberi yarıçapı r ve
 $u = \frac{a+b+c}{2}$ olmak üzere,

$A(ABC) = u \cdot r$ dir.

Çözüm



$$u = \frac{7+5+4}{2} = 8$$

olmak üzere,

üç kenarı bilinen
üçgenin alanı formülünden;

$$A(ABC) = \sqrt{8 \cdot 4 \cdot 3 \cdot 1} = 4\sqrt{6} \text{ cm}^2$$

Aynı zamanda $A(ABC) = u \cdot r$ olduğundan,

$$4\sqrt{6} = 8 \cdot r \Rightarrow r = \frac{\sqrt{6}}{2}$$

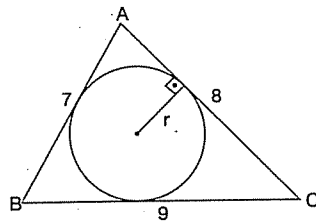
Cevap B

TEST - 11

1. Çevresi 24 cm olan ABC üçgeninin, iç teğet çemberinin yarıçapı 3 cm ise $A(ABC)$ kaç cm^2 dir?

- A) 24 B) 32 C) 36 D) 40 E) 42

2.

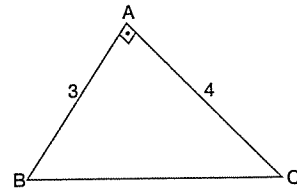


ABC bir üçgen
|BC| = 9 cm
|AC| = 8 cm
|AB| = 7 cm

Yukarıdaki verilere göre, ABC üçgeninin iç teğet çemberinin yarıçapı kaç cm dir?

- A) 2 B) $\sqrt{5}$ C) 3 D) $2\sqrt{3}$ E) $2\sqrt{5}$

3.

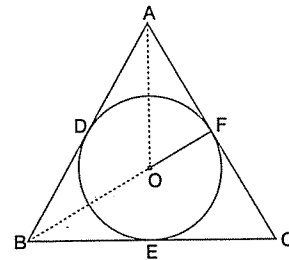


ABC dik üçgen
|AB| $\perp$ |AC|
|AC| = 4 cm
|AB| = 3 cm

Yukarıdaki verilere göre, ABC üçgeninin iç teğet çemberinin yarıçapı kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

4.



ABC bir üçgen
O merkezli
çember üçgene
D, E, F noktalarında
teğettir.
|AB| = 15 br
|OF| = 4 br

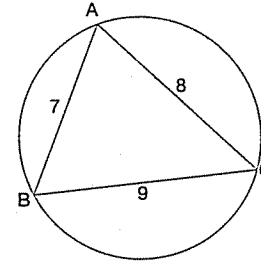
Yukarıdaki verilere göre, $A(ABO)$ kaç br^2 dir?

- A) 20 B) 25 C) 30 D) 35 E) 40

1. C 2. B 3. A 4. C

Çevrel Çemberinin Yarı Çapı Verilen Üçgenin Alanı

Örnek

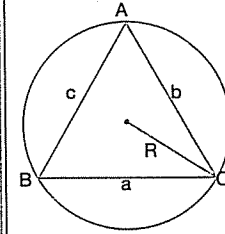


ABC bir üçgen
|BC| = 9 cm
|AC| = 8 cm
|AB| = 7 cm

Yukarıdaki verilere göre, ABC üçgeninin çevrel çemberinin yarıçapı R kaç cm dir?

- A) $\frac{63}{2\sqrt{5}}$ B) $\frac{63}{4\sqrt{5}}$ C) $\frac{63}{6\sqrt{5}}$
D) $\frac{73}{6\sqrt{5}}$ E) 5

Çözüm



ABC üçgeninin çevrel çemberinin yarıçapı R ise;

$$A(ABC) = \frac{a \cdot b \cdot c}{4R} \text{ dir.}$$

$$ABC \text{ üçgeninde } u = \frac{7+8+9}{2} = 12 \text{ cm}$$

$$A(ABC) = \sqrt{12 \cdot 3 \cdot 4 \cdot 5} = 12\sqrt{5} \text{ cm}^2$$

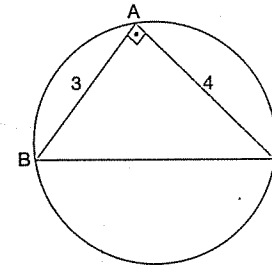
Aynı zamanda $A(ABC) = \frac{a \cdot b \cdot c}{4R} = \frac{7 \cdot 8 \cdot 9}{4R}$ olduğundan

$$\frac{7 \cdot 8 \cdot 9}{4R} = 12\sqrt{5} \Rightarrow R = \frac{63}{6\sqrt{5}} \text{ bulunur.}$$

Cevap C

TEST - 12

1.

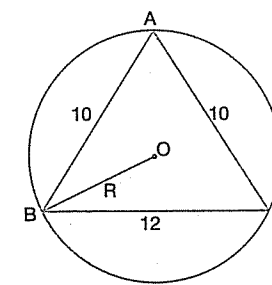


ABC dik üçgen
|AB| $\perp$ |AC|
|AC| = 4 br
|AB| = 3 br

Yukarıdaki verilere göre, ABC üçgeninin çevrel çemberinin yarıçapı kaç br dir?

- A) $\frac{3}{2}$ B) 2 C) $\frac{5}{2}$ D) 3 E) $\frac{7}{2}$

2.

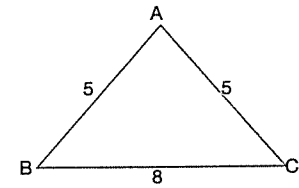


ABC ikizkenar
üçgen
O noktası üçgenin
çevrel çemberinin
merkezidir.
|BC| = 12 cm
|AB| = |AC| = 10 cm

Yukarıdaki verilere göre, ABC üçgeninin çevrel çemberinin yarıçapı R kaç cm dir?

- A) $\frac{25}{2}$ B) $\frac{25}{4}$ C) 6 D) 5 E) 3

3.

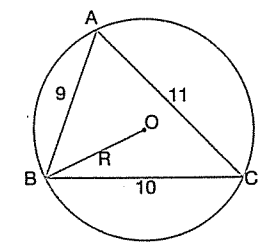


ABC ikizkenar
üçgen
|BC| = 8 br
|AB| = |AC| = 5 br

Yukarıdaki verilere göre, ABC üçgeninin çevrel çemberinin yarıçapı kaç br dir?

- A) 2 B) 3 C) 4 D) $\frac{25}{6}$ E) $\frac{25}{4}$

4.



ABC üçgeninin O
noktası çevrel çemberinin
merkezidir.
|AC| = 11 cm
|BC| = 10 cm
|AB| = 9 cm

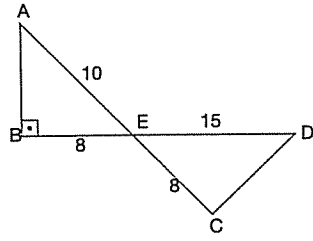
Yukarıdaki verilere göre, ABC üçgeninin çevrel çemberinin yarıçapı R kaç cm dir?

- A) $\frac{33}{7\sqrt{2}}$ B) $\frac{33}{5\sqrt{2}}$ C) $\frac{33}{4\sqrt{2}}$
D) $\frac{33}{2\sqrt{2}}$ E) $\frac{33}{\sqrt{2}}$

1. C 2. B 3. D 4. C

Sinüslü Alan Formülü - I

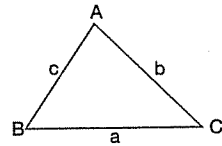
Örnek



ABE dik üçgen
[AB] ⊥ [BD]
A, E, C noktaları
doğrusal
|ED| = 15 cm
|AE| = 10 cm
|BE| = |EC| = 8 cm

Yukarıdaki verilere göre, A(CED) kaç cm² dir?

- A) 30 B) 32 C) 36 D) 40 E) 44

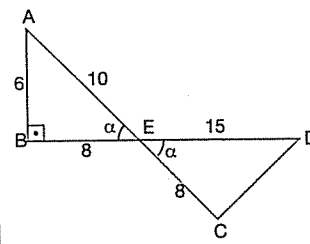


$$A(ABC) = \frac{1}{2} a \cdot b \cdot \sin \widehat{C}$$

$$= \frac{1}{2} a \cdot c \cdot \sin \widehat{B}$$

$$= \frac{1}{2} b \cdot c \cdot \sin \widehat{A}$$

Çözüm

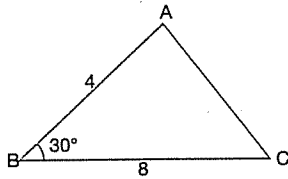


ABC üçgeninde
|AB| = 6 (6-8-10)
 $\sin \alpha = \frac{6}{10} = \frac{3}{5}$
 $A(CED) = \frac{1}{2} \cdot 8 \cdot 15 \cdot \sin \alpha$
 $A(CED) = \frac{1}{2} \cdot 8 \cdot 15 \cdot \frac{3}{5}$
 $A(CED) = 36 \text{ cm}^2$
olur.

Cevap C

TEST - 13

1.

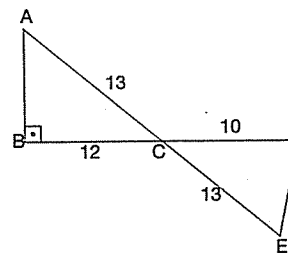


ABC bir üçgen
 $m(\widehat{ABC}) = 30^\circ$
|BC| = 8 cm
|AB| = 4 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

2.

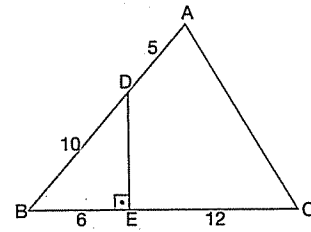


ABC dik üçgen
[AB] ⊥ [BD]
A, C, E noktaları
doğrusal
|AC| = |CE| = 13 cm
|BC| = 12 cm
|CD| = 10 cm

Yukarıdaki verilere göre, A(ECD) kaç cm² dir?

- A) 20 B) 22 C) 25 D) 27 E) 39

3.

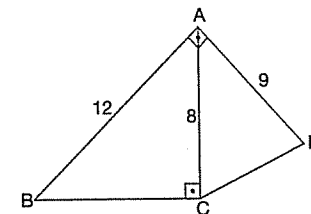


ABC bir üçgen
[DE] ⊥ [BC]
|EC| = 12 cm
|BD| = 10 cm
|BE| = 6 cm
|AD| = 5 cm

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 54 B) 72 C) 80 D) 96 E) 108

4.



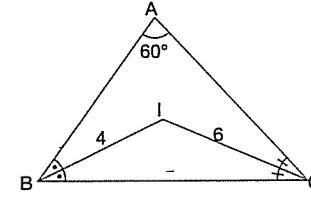
ABCD bir dörtgen
[BA] ⊥ [AD]
[AC] ⊥ [BC]
|AB| = 12 cm
|AD| = 9 cm
|AC| = 8 cm

Yukarıdaki verilere göre, A(ACD) kaç cm² dir?

- A) 12 B) 18 C) 24 D) 27 E) 30

Sinüslü Alan Formülü - II

Örnek

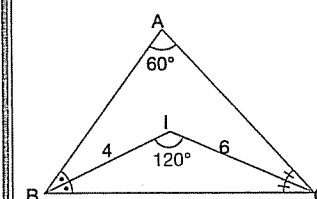


ABC bir üçgen
[BI] ve [CI]
açıortay
 $m(\widehat{BAC}) = 60^\circ$
|CI| = 6 br
|BI| = 4 br

Yukarıdaki verilere göre, A(BIC) kaç br² dir?

- A) 4 B) 6 C) $6\sqrt{2}$ D) $6\sqrt{3}$ E) $8\sqrt{3}$

Çözüm



I, açıortayların kesim
noktası olduğundan,
 $m(\widehat{BIC}) = 90^\circ + \frac{m(\widehat{A})}{2}$
 $m(\widehat{BIC}) = 90^\circ + \frac{60^\circ}{2}$
 $m(\widehat{BIC}) = 120^\circ$

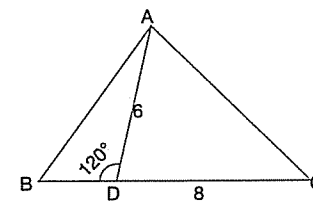
$$A(BIC) = \frac{1}{2} \cdot 4 \cdot 6 \cdot \sin 120^\circ \left(\sin 120^\circ = \sin 60^\circ = \frac{\sqrt{3}}{2} \right)$$

$$= \frac{1}{2} \cdot 4 \cdot 6 \cdot \frac{\sqrt{3}}{2} = 6\sqrt{3} \text{ br}^2 \text{ olur.}$$

Cevap D

TEST - 14

1.

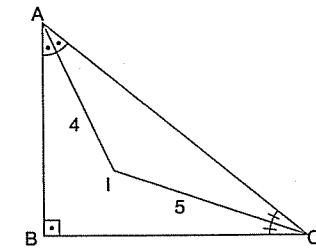


ABC bir üçgen
 $m(\widehat{ADB}) = 120^\circ$
|DC| = 8 cm
|AD| = 6 cm

Yukarıdaki verilere göre, A(ADC) kaç cm² dir?

- A) 6 B) $6\sqrt{3}$ C) $8\sqrt{3}$ D) $12\sqrt{3}$ E) 24

3.

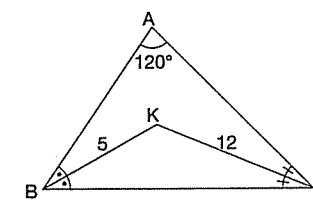


ABC dik üçgen
[AB] ⊥ [BC]
[AI] ve [CI]
açıortay
|CI| = 5 cm
|AI| = 4 cm

Yukarıdaki verilere göre, A(AIC) kaç cm² dir?

- A) 5 B) 6 C) $5\sqrt{2}$ D) $6\sqrt{2}$ E) $8\sqrt{2}$

2.

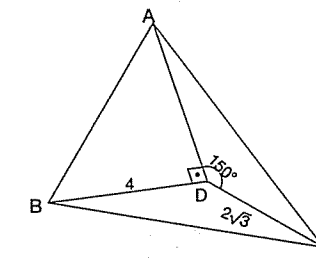


ABC bir üçgen
[BK] ve [CK]
açıortay
 $m(\widehat{BAC}) = 120^\circ$
|CK| = 12 cm
|BK| = 5 cm

Yukarıdaki verilere göre, A(BKC) kaç cm² dir?

- A) 8 B) 12 C) 15 D) 18 E) 21

4.



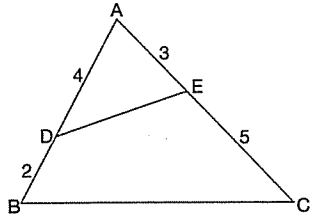
ABC bir üçgen
[AD] ⊥ [BD]
 $m(\widehat{ADC}) = 150^\circ$
|BD| = 4 cm
|DC| = $2\sqrt{3}$ cm

Yukarıdaki verilere göre, A(BDC) kaç cm² dir?

- A) 6 B) 4 C) $2\sqrt{3}$ D) 3 E) $\sqrt{3}$

Sinüslü Alan Formülü - III

Örnek



ABC bir üçgen

$$|EC| = 5 \text{ br}$$

$$|AD| = 4 \text{ br}$$

$$|AE| = 3 \text{ br}$$

$$|DB| = 2 \text{ br}$$

Yukarıdaki verilere göre, $\frac{A(ADE)}{A(ABC)}$ oranı kaçtır?

- A) 1 B) $\frac{1}{2}$ C) $\frac{1}{3}$ D) $\frac{1}{4}$ E) $\frac{1}{5}$

Çözüm

$$A(ADE) = \frac{1}{2} \cdot 3 \cdot 4 \cdot \sin \hat{A}$$

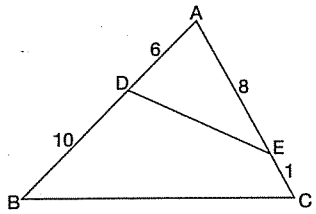
$$A(ABC) = \frac{1}{2} \cdot 6 \cdot 8 \cdot \sin \hat{A}$$

$$\frac{A(ADE)}{A(ABC)} = \frac{\frac{1}{2} \cdot 3 \cdot 4 \cdot \sin \hat{A}}{\frac{1}{2} \cdot 6 \cdot 8 \cdot \sin \hat{A}} = \frac{1}{4} \text{ olur.}$$

Cevap D

TEST - 15

1.



ABC bir üçgen

$$|DB| = 10 \text{ br}$$

$$|AE| = 8 \text{ br}$$

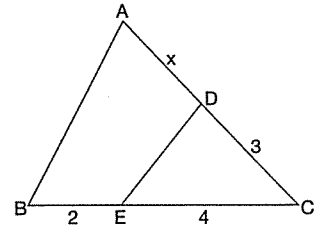
$$|AD| = 6 \text{ br}$$

$$|EC| = 1 \text{ br}$$

Yukarıdaki verilere göre, $\frac{A(ADE)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) $\frac{1}{3}$ D) $\frac{2}{5}$ E) $\frac{1}{5}$

3.



ABC bir üçgen

$$\frac{A(DEC)}{A(ABC)} = \frac{2}{5}$$

$$|EC| = 4 \text{ br}$$

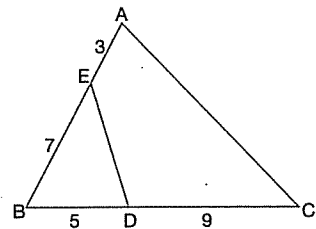
$$|DC| = 3 \text{ br}$$

$$|BE| = 2 \text{ br}$$

Yukarıdaki verilere göre, $|AD| = x$ kaç br dir?

- A) 1 B) 2 C) 3 D) $\frac{7}{2}$ E) 5

2.



ABC bir üçgen

$$|DC| = 9 \text{ br}$$

$$|BE| = 7 \text{ br}$$

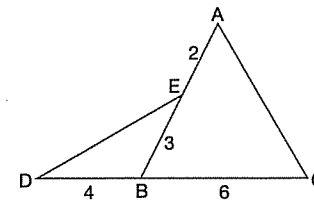
$$|BD| = 5 \text{ br}$$

$$|AE| = 3 \text{ br}$$

Yukarıdaki verilere göre, $\frac{A(BDE)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{4}{5}$ B) $\frac{1}{2}$ C) $\frac{3}{5}$ D) $\frac{1}{4}$ E) $\frac{1}{6}$

4.



ABC bir üçgen

D, B, C noktaları doğrusal

$$|BC| = 6 \text{ br}$$

$$|DB| = 4 \text{ br}$$

$$|EB| = 3 \text{ br}$$

$$|EA| = 2 \text{ br}$$

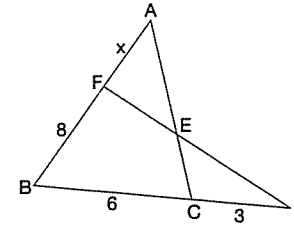
Yukarıdaki verilere göre, $\frac{A(BDE)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{1}{5}$ B) $\frac{2}{5}$ C) $\frac{3}{4}$ D) $\frac{4}{5}$ E) 1

1. C 2. D 3. B 4. B

Sinüslü Alan Formülü - IV

Örnek



ABC ve BDF üçgen

$$A(AFE) = A(ECD)$$

$$|BF| = 8 \text{ cm}$$

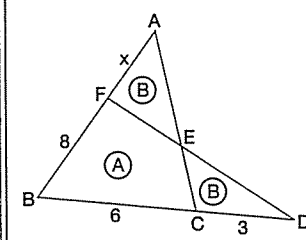
$$|BC| = 6 \text{ cm}$$

$$|CD| = 3 \text{ cm}$$

Yukarıdaki verilere göre, $|AF| = x$ kaç cm dir?

- A) 2 B) 3 C) 4 D) 5 E) 6

Çözüm



$A(BFEC) = A$ diyelim

$$A(ABC) = A(BFD) = A + B$$

B açısına göre, sinüs olan formülleri yazılırsa,

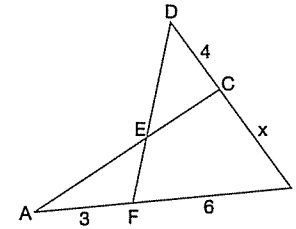
$$\frac{1}{2} \cdot (x + 8) \cdot 6 \sin \hat{B} = \frac{1}{2} \cdot 8 \cdot 9 \cdot \sin \hat{B}$$

$x = 4$ bulunur.

Cevap C

TEST - 16

1.



ABC ve DFB üçgen

$$A(ABC) = A(DFB)$$

$$|FB| = 6 \text{ cm}$$

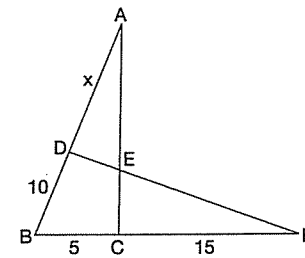
$$|DC| = 4 \text{ cm}$$

$$|AF| = 3 \text{ cm}$$

Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) 5 B) 7 C) 8 D) 9 E) 12

3.



ABC ve DBF üçgen

$$A(CEF) = A(ADE)$$

$$|CF| = 15 \text{ cm}$$

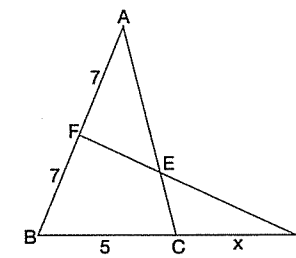
$$|BD| = 10 \text{ cm}$$

$$|BC| = 5 \text{ cm}$$

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) 22 B) 25 C) 27 D) 30 E) 40

2.



ABC ve BDF üçgen

$$A(AFE) = A(ECD)$$

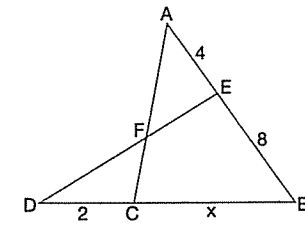
$$|AF| = |BF| = 7 \text{ cm}$$

$$|BC| = 5 \text{ cm}$$

Yukarıdaki verilere göre, $|CD| = x$ kaç cm dir?

- A) 5 B) 7 C) $\frac{15}{2}$ D) 9 E) $\frac{23}{2}$

4.



ABC ve DEB üçgen

$$A(AEF) = A(DFC)$$

$$|EB| = 8 \text{ cm}$$

$$|AE| = 4 \text{ cm}$$

$$|DC| = 2 \text{ cm}$$

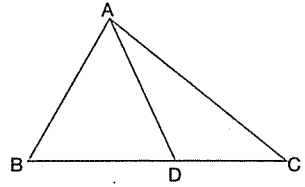
Yukarıdaki verilere göre, $|CB| = x$ kaç cm dir?

- A) 1 B) $\frac{3}{2}$ C) 2 D) 3 E) 4

1. C 2. A 3. D 4. E

Yükseklikleri Eşit Üçgenler - I

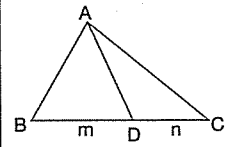
Örnek



ABC bir üçgen
 $2|BD| = 3|DC|$
 $A(ABD) = 18 \text{ br}^2$

Yukarıdaki verilene göre, $A(ADC)$ kaç br^2 dir?

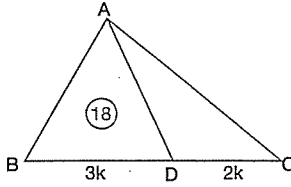
- A) 9 B) 12 C) 15 D) 18 E) 21



Yükseklikleri eşit üçgenlerin
 alanlarının oranı tabanlarının
 oranına eşittir.

$$\frac{A(ABD)}{A(ADC)} = \frac{m}{n}$$

Çözüm



$2|BD| = 3|DC|$ ise,
 $|DC| = 2k$ ve $|BD| = 3k$

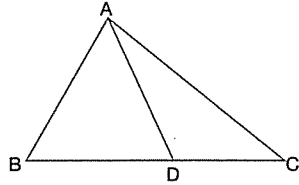
$$\frac{A(ABD)}{A(ADC)} = \frac{3k}{2k} \Rightarrow \frac{18}{A(ADC)} = \frac{3}{2}$$

$$\Rightarrow A(ADC) = 12 \text{ br}^2 \text{ olur.}$$

Cevap B

TEST - 17

1.

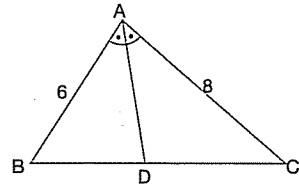


ABC bir üçgen
 $|BD| = 2|DC|$
 $A(ADC) = 12 \text{ br}^2$

Yukarıdaki verilene göre, $A(ABC)$ kaç br^2 dir?

- A) 24 B) 36 C) 42 D) 48 E) 54

3.

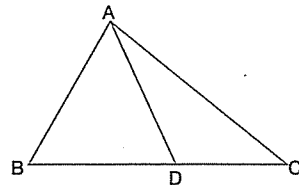


ABC bir üçgen
 $[AD]$ açıortay
 $A(ADC) = 16 \text{ br}^2$
 $|AC| = 8 \text{ br}$
 $|AB| = 6 \text{ br}$

Yukarıdaki verilene göre, $A(ABD)$ kaç br^2 dir?

- A) 3 B) 6 C) 9 D) 12 E) 21

2.

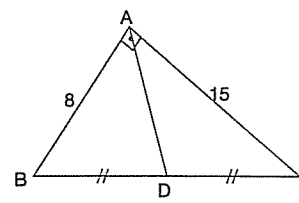


ABC bir üçgen
 $3|BD| = 4|DC|$
 $A(ABD) = 24 \text{ br}^2$

Yukarıdaki verilene göre, $A(ADC)$ kaç br^2 dir?

- A) 12 B) 15 C) 18 D) 24 E) 30

4.



ABC dik üçgen
 $[AB] \perp [AC]$
 $|BD| = |DC|$
 $|AC| = 15 \text{ cm}$
 $|AB| = 8 \text{ cm}$

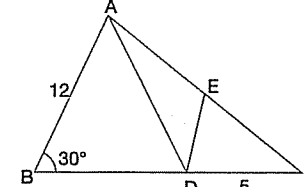
Yukarıdaki verilene göre, $A(ADC)$ kaç cm^2 dir?

- A) 15 B) 18 C) 21 D) 24 E) 30

1. B 2. C 3. D 4. E

Yükseklikleri Eşit Üçgenler - II

Örnek

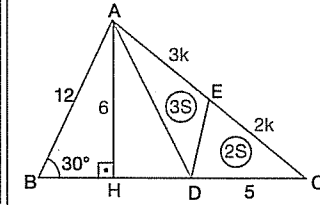


ABC bir üçgen
 $m(\widehat{ABC}) = 30^\circ$
 $2|AE| = 3|EC|$
 $|AB| = 12 \text{ br}$
 $|DC| = 5 \text{ br}$

Yukarıdaki verilene göre, $A(AED)$ kaç br^2 dir?

- A) 6 B) 8 C) 9 D) 10 E) 11

Çözüm



$[AH] \perp [BC]$ çizersek
 $|AH| = 6 \text{ cm}$ olur.
 $(30^\circ - 60^\circ - 90^\circ)$
 $2|AE| = 3|EC|$
 $|AE| = 3k$ ve
 $|EC| = 2k$

$A(ADE) = 3S$ dersek $A(DEC) = 2S$ olur.

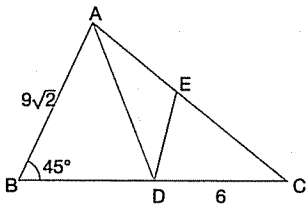
$$A(ADC) = 5S = \frac{5 \cdot 6}{2} \Rightarrow S = 3 \text{ br}^2 \text{ olur.}$$

$$A(ADE) = 3S \Rightarrow A(ADE) = 3 \cdot 3 = 9 \text{ br}^2 \text{ olur.}$$

Cevap C

TEST - 18

1.

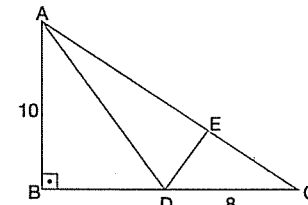


ABC bir üçgen
 $m(\widehat{ABC}) = 45^\circ$
 $2|AE| = |EC|$
 $|AB| = 9\sqrt{2} \text{ cm}$
 $|DC| = 6 \text{ cm}$

Yukarıdaki verilene göre, $A(AED)$ kaç cm^2 dir?

- A) 6 B) 9 C) 12 D) 15 E) 18

3.

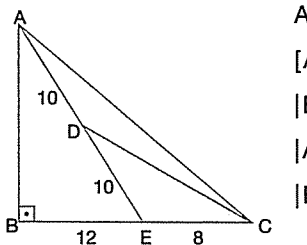


ABC dik üçgen
 $[AB] \perp [BC]$
 $\frac{|AE|}{|EC|} = 3$
 $|AB| = 10 \text{ br}$
 $|DC| = 8 \text{ br}$

Yukarıdaki verilene göre, $A(EDC)$ kaç br^2 dir?

- A) 5 B) 10 C) 15 D) 18 E) 24

2.

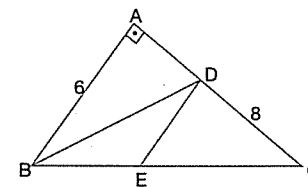


ABC dik üçgen
 $[AB] \perp [BC]$
 $|BE| = 12 \text{ cm}$
 $|AD| = |DE| = 10 \text{ cm}$
 $|EC| = 8 \text{ cm}$

Yukarıdaki verilene göre, $A(DEC)$ kaç cm^2 dir?

- A) 18 B) 24 C) 32 D) 40 E) 48

4.



ABC dik üçgen
 $[AB] \perp [AC]$
 $|EC| = 2|BE|$
 $|DC| = 8 \text{ cm}$
 $|AB| = 6 \text{ cm}$

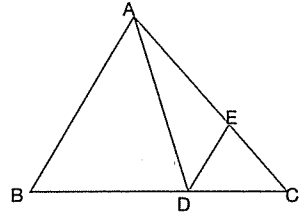
Yukarıdaki verilene göre, $A(BED)$ kaç cm^2 dir?

- A) 8 B) 10 C) 16 D) 20 E) 24

1. B 2. C 3. B 4. A

Yükseklikleri Eşit Üçgenler - III

Örnek



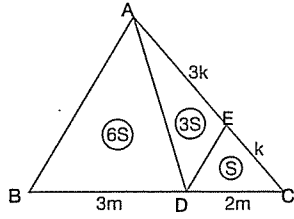
ABC bir üçgen
 $|AE| = 3|EC|$
 $2|BD| = 3|DC|$
 $A(ABC) = 70 \text{ br}^2$

Yukarıdaki verilere göre, $A(DEC)$ kaç br^2 dir?

- A) 3 B) 4 C) 5 D) 6 E) 7



Çözüm



$|AE| = 3|EC|$ ise
 $|EC| = k$ dersek,
 $|AE| = 3k$ olur.
 $\downarrow \quad \downarrow$
 $A(DEC) = S$ ise,
 $A(AED) = 3S$ olur.

$3|DC| = 2|BD|$ ise

$|DC| = 2m$ dersek $|BD| = 3m$ olur.

$A(ADC) = 4S \Rightarrow A(ABD) = 6S$ olur.

Buna göre, $A(ABC) = 10S$ olur.

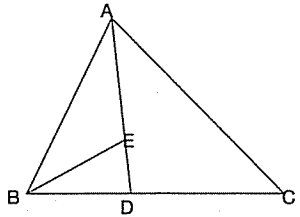
$A(ABC) = 70 \text{ br}^2 \Rightarrow 10S = 70 \Rightarrow S = 7 \text{ br}^2$ olur.

$A(DEC) = S \Rightarrow A(DEC) = 7 \text{ br}^2$ olur.

Cevap E

TEST - 19

1.

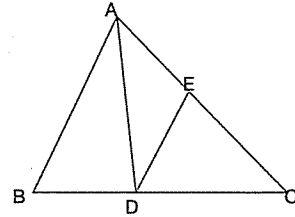


ABC bir üçgen
 $|AE| = 2|ED|$
 $3|BD| = 2|DC|$
 $A(BED) = 4 \text{ br}^2$

Yukarıdaki verilere göre, $A(ABC)$ kaç br^2 dir?

- A) 15 B) 20 C) 25 D) 30 E) 40

3.

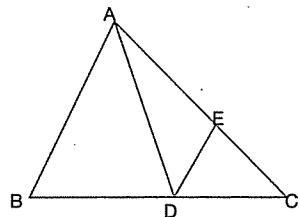


ABC bir üçgen
 $2|EC| = 3|AE|$
 $|DC| = 3|BD|$
 $A(DEC) = 9 \text{ br}^2$

Yukarıdaki verilere göre, $A(ABD)$ kaç br^2 dir?

- A) 2 B) 5 C) 10 D) 12 E) 15

2.

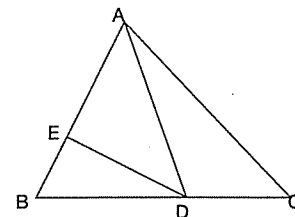


ABC bir üçgen
 $2|EC| = |AE|$
 $5|DC| = 4|BD|$
 $A(DEC) = 8 \text{ br}^2$

Yukarıdaki verilere göre, $A(ABC)$ kaç br^2 dir?

- A) 30 B) 36 C) 40 D) 46 E) 54

4.



ABC bir üçgen
 $|AE| = 2|EB|$
 $|BD| = |DC|$
 $A(BED) = 12 \text{ br}^2$

Yukarıdaki verilere göre, $A(ADC)$ kaç br^2 dir?

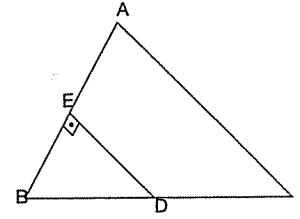
- A) 24 B) 30 C) 36 D) 40 E) 46

sonuç yayınları

1. D 2. E 3. B 4. C

Yükseklikleri Eşit Üçgenler - IV

Örnek



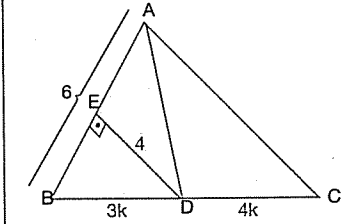
ABC bir üçgen
 $[ED] \perp [AB]$
 $4|BD| = 3|DC|$
 $|AB| = 6 \text{ cm}$
 $|ED| = 4 \text{ cm}$

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 14 B) 28 C) 32 D) 40 E) 48



Çözüm



$[AD]$ yi çizelim.
 $A(ABD) = \frac{6 \cdot 4}{2}$
 $A(ABD) = 12 \text{ cm}^2$
 $4|BD| = 3|CD|$ ise

$|BD| = 3k$ ve $|CD| = 4k$ olur.

$\downarrow \quad \downarrow$
 $A(ABD) = 3S$ ve $A(ADC) = 4S$ olur.

$A(ABD) = 12 \text{ cm}^2 \Rightarrow 3S = 12 \Rightarrow S = 4 \text{ cm}$ olur.

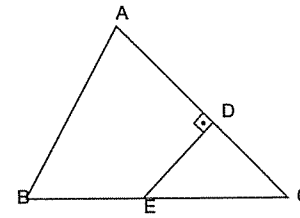
$A(ADC) = 4S \Rightarrow A(ADC) = 4 \cdot 4 = 16 \text{ cm}^2$

$A(ABC) = A(ABD) + A(ADC) = 12 + 16 = 28 \text{ cm}^2$ olur.

Cevap B

TEST - 20

1.

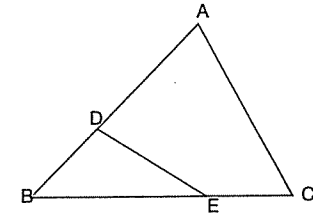


ABC bir üçgen
 $[ED] \perp [AC]$
 $5|EC| = 4|BE|$
 $|AC| = 8 \text{ br}$
 $|ED| = 2 \text{ br}$

Yukarıdaki verilere göre, $A(ABC)$ kaç br^2 dir?

- A) 9 B) 18 C) 24 D) 28 E) 32

3.

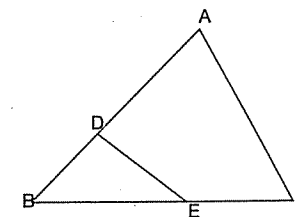


ABC bir üçgen
 $2|BD| = |AD|$
 $3|EC| = |BE|$
 $A(ABC) = 48 \text{ br}^2$

Yukarıdaki verilere göre, $A(BDE)$ kaç br^2 dir?

- A) 12 B) 15 C) 16 D) 21 E) 24

2.

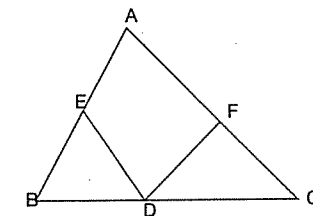


ABC bir üçgen
 $2|BD| = |AD|$
 $4|BE| = 9|EC|$
 $A(BDE) = 6 \text{ cm}^2$

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 14 B) 18 C) 26 D) 32 E) 36

4.



ABC bir üçgen
 $|AE| = |BE|$
 $|AF| = 2|FC|$
 $|DC| = 3|BD|$

Yukarıdaki verilere göre, $\frac{A(AEFD)}{A(BED)}$ oranı kaçtır?

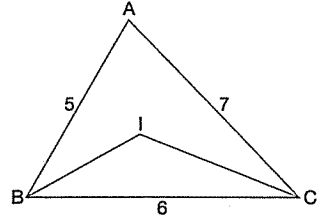
- A) 1 B) $\frac{4}{3}$ C) 3 D) $\frac{9}{2}$ E) 5

sonuç yayınları

1. B 2. C 3. A 4. E

Alan - Açıortay - III

Örnek

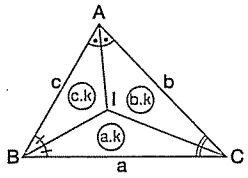


ABC bir üçgen
I, ABC üçge-
ninin iç teğet
çemberinin
merkezi
 $|AC| = 7$ cm

$|BC| = 6$ cm , $|AB| = 5$ cm

Yukarıdaki verilere göre, $\frac{A(BIC)}{A(ABC)}$ oranı kaçtır?

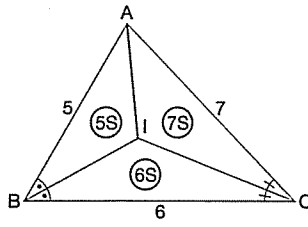
- A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{2}{3}$ D) $\frac{4}{5}$ E) $\frac{5}{6}$



I, iç teğet çemberinin merke-
zi olmak üzere,
BIC, AIC ve BIA üçgeninin
alanları tabanlara ile orantılı-
dır.



Çözüm



I, iç teğet çemberin
merkezi olduğuna
göre,
 $A(BIC) = 6S$

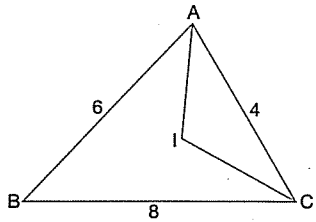
$A(ABC) = 5S + 6S + 7S = 18S$ tir.

Buna göre, $\frac{A(BIC)}{A(ABC)} = \frac{6S}{18S} = \frac{1}{3}$ olur.

Cevap B

TEST - 23

1.



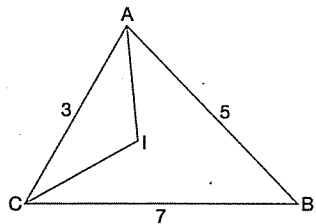
ABC bir üçgen
I, ABC
üçgeninin iç
teğet çemberi-
nin merkezi
 $|BC| = 8$ cm

$|AB| = 6$ cm , $|AC| = 4$ cm

Yukarıdaki verilere göre, $\frac{A(AIC)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{2}{3}$ B) $\frac{4}{9}$ C) $\frac{1}{3}$ D) $\frac{2}{9}$ E) $\frac{1}{9}$

2.



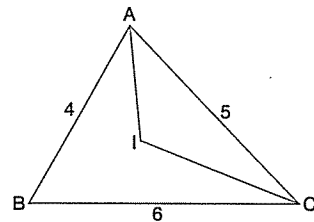
ABC bir üçgen
I, ABC
üçgeninin iç
teğet çemberi-
nin merkezi
 $A(AIC) = 6$ br²

$|CB| = 7$ br , $|AB| = 5$ br , $|AC| = 3$ br

Yukarıdaki verilere göre, $A(ABC)$ kaç br² dir?

- A) 15 B) 21 C) 30 D) 38 E) 42

3.



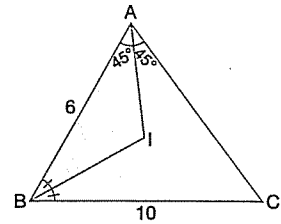
ABC bir üçgen
I, ABC
üçgeninin iç
teğet çemberi-
nin merkezi
 $|BC| = 6$ br

$|AC| = 5$ br , $|AB| = 4$ br

Yukarıdaki verilere göre, $\frac{A(ABCI)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{1}{3}$ B) $\frac{2}{3}$ C) $\frac{3}{4}$ D) $\frac{5}{6}$ E) $\frac{14}{15}$

4.



ABC bir üçgen
 $m(\widehat{ABI}) = m(\widehat{IBC})$
 $m(\widehat{BAI}) = 45^\circ$
 $m(\widehat{IAC}) = 45^\circ$
 $|BC| = 10$ cm
 $|AB| = 6$ cm

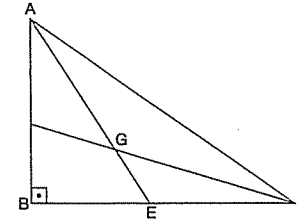
Yukarıdaki verilere göre, $A(ABI)$ kaç cm² dir?

- A) 6 B) 8 C) 10 D) 12 E) 14

1. D 2. C 3. B 4. A

Kenarortayların Böldüğü Alanlar - I

Örnek

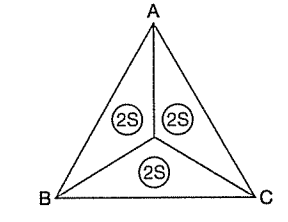
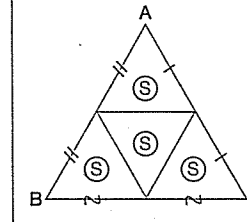
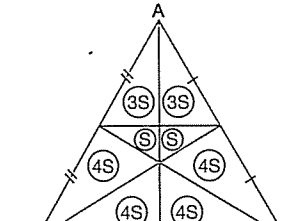
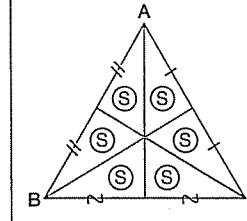


ABC bir üçgen
G, ağırlık merkezi
 $|AB| = 12$ br
 $|BC| = 8$ br

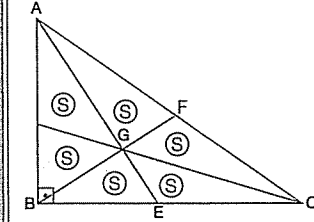
Yukarıdaki verilere göre, $A(GEC)$ kaç br² dir?

- A) 4 B) 8 C) 12 D) 16 E) 20

G, ağırlık merkezi olmak üzere,



Çözüm



[BF] yi çizersek, G
ağırlık merkezi oldu-
ğundan ABC üçgeni
6 eşit parçaya ayrılır.

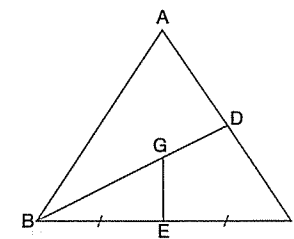
$A(ABC) = 6S = \frac{12 \cdot 8}{2}$
 $\Rightarrow S = 8$ br² olur.

$A(GEC) = S = 8$ br² olur.

Cevap B

TEST - 24

1.

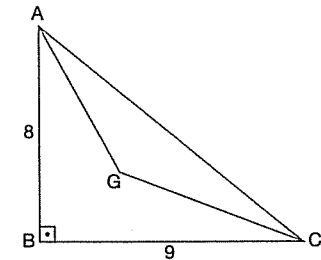


ABC bir üçgen
[BD] kenarortay
G, ağırlık merkezi
 $|BC| = |EC|$
 $A(ABC) = 66$ cm²

Yukarıdaki verilere göre, $A(GBE)$ kaç cm² dir?

- A) 11 B) 18 C) 22 D) 27 E) 33

2.



ABC dik üçgen
 $[AB] \perp [BC]$
G, ağırlık merkezi
 $|AB| = 8$ cm
 $|BC| = 9$ cm

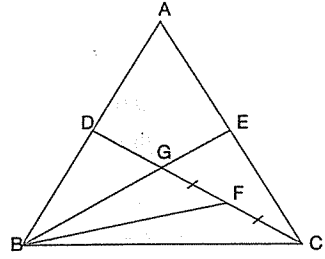
Yukarıdaki verilere göre, $A(GAC)$ kaç cm² dir?

- A) 9 B) 12 C) 18 D) 21 E) 24

1. A 2. B

Kenarortayların Böldüğü Alanlar - II

Örnek



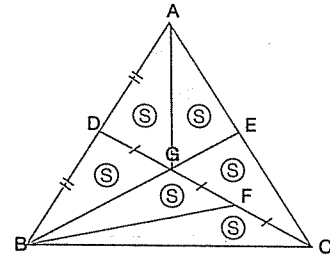
ABC bir üçgen
G, ağırlık merkezi
 $|GF| = |FC|$
 $A(ABC) = 60 \text{ br}^2$

Yukarıdaki verilere göre, $A(ADGE) + A(BFC)$ kaç cm^2 dir?

- A) 10 B) 20 C) 30 D) 40 E) 50



Çözüm



G, ağırlık merkezi olduğundan,
 $|DG| = |GF| = |FC|$ dir.

Buna göre, $A(BFC) = A(BFG) = A(BGD) = S$ olur.

$A(BDC) = 3S \Rightarrow A(ADC) = 3S$ olur.

O halde, $A(ABC) = 6S$ olur.

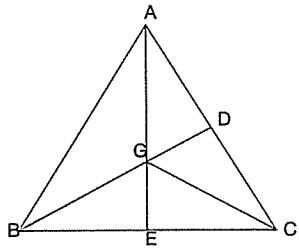
$6S = 60 \Rightarrow S = 10 \text{ br}^2$ olur.

$A(ADGE) + A(BFC) = 2S + S = 3S = 30 \text{ br}^2$ olur.

Cevap C

TEST - 25

1.

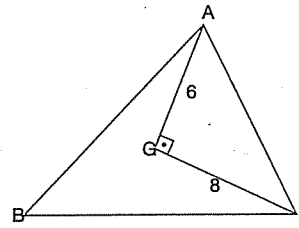


ABC bir üçgen
 $[AE] \cap [BD] = \{G\}$
G, ağırlık merkezi
 $A(GEC) = 12 \text{ cm}^2$

Yukarıdaki verilere göre, $A(ABG)$ kaç cm^2 dir?

- A) 9 B) 12 C) 18 D) 24 E) 30

2.

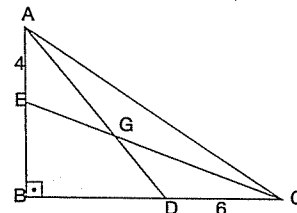


ABC bir üçgen
G, ağırlık merkezi
 $[AG] \perp [GC]$
 $|GC| = 8 \text{ cm}$
 $|AG| = 6 \text{ cm}$

Yukarıdaki verilere göre, $A(ABC)$ kaç cm^2 dir?

- A) 54 B) 72 C) 84 D) 108 E) 124

3.

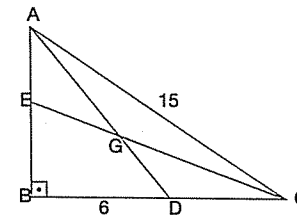


ABC dik üçgen
 $[AB] \perp [BC]$
 $[AD] \cap [CE] = \{G\}$
G, ağırlık merkezi
 $|DC| = 6 \text{ cm}$
 $|AE| = 4 \text{ cm}$

Yukarıdaki verilere göre, $A(BEGD)$ kaç cm^2 dir?

- A) 8 B) 10 C) 12 D) 15 E) 16

4.



ABC dik üçgen
 $[AB] \perp [BC]$
G, ağırlık merkezi
 $[AD] \cap [EC] = \{G\}$
 $|AC| = 15 \text{ cm}$
 $|BD| = 6 \text{ cm}$

Yukarıdaki verilere göre, $A(AGC)$ kaç cm^2 dir?

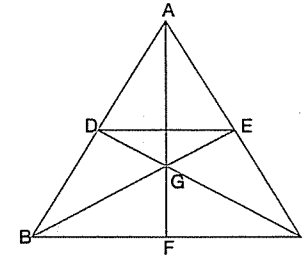
- A) 14 B) 18 C) 24 D) 28 E) 32

sonuç yayınları

1. D 2. B 3. E 4. B

Kenarortayların Böldüğü Alanlar - III

Örnek



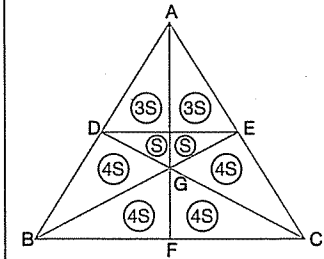
ABC bir üçgen
G, ağırlık merkezi
 $[AF]$, $[CD]$ ve $[BE]$ kenarortaylar

Yukarıdaki şekilde taralı alanlar toplamı 18 cm^2 olduğuna göre, $A(ABC)$ kaç cm^2 dir?

- A) 24 B) 48 C) 72 D) 108 E) 136



Çözüm



G, ağırlık merkezi olmak üzere,
Bölünmüş alanları şekil üzerinde gösterelim.

Taralı alanlar toplamı $= 4S + S + S = 6S$ olur.

$6S = 18 \Rightarrow S = 3$ olur.

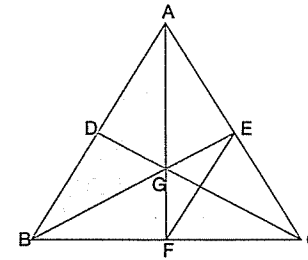
$A(ABC) = 24S \Rightarrow A(ABC) = 24 \cdot 3$

$\Rightarrow A(ABC) = 72 \text{ cm}^2$ olur.

Cevap C

TEST - 26

1.

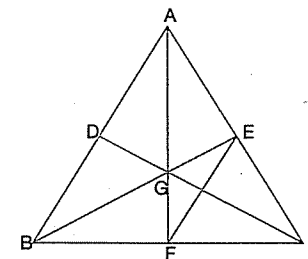


ABC bir üçgen
 $[AF]$, $[CD]$ ve $[BE]$ kenarortaylar

Yukarıdaki şekilde taralı alanlar toplamı 35 cm^2 olduğuna göre, $A(ABC)$ kaç cm^2 dir?

- A) 42 B) 56 C) 84 D) 96 E) 115

2.

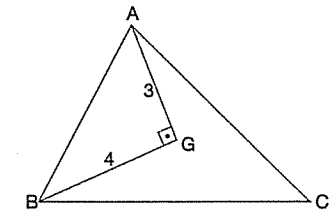


ABC bir üçgen
 $[BE]$, $[DC]$ ve $[AF]$ kenarortaylar
 $A(ABC) = 56 \text{ cm}^2$

Yukarıdaki verilere göre, $A(AFE)$ kaç cm^2 dir?

- A) 14 B) 16 C) 20 D) 24 E) 26

3.

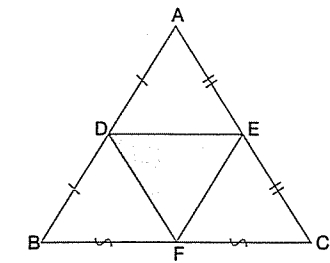


ABC bir üçgen
G, ağırlık merkezi
 $[AG] \perp [BG]$
 $|BG| = 4 \text{ cm}$
 $|AG| = 3 \text{ cm}$

Yukarıdaki verilere göre, taralı alan kaç cm^2 dir?

- A) 9 B) 12 C) 16 D) 20 E) 24

4.



ABC bir üçgen
 $|AD| = |DB|$
 $|AE| = |EC|$
 $|BF| = |FC|$
 $A(ABC) = 36 \text{ cm}^2$

Yukarıdaki verilere göre, $A(DEF)$ kaç cm^2 dir?

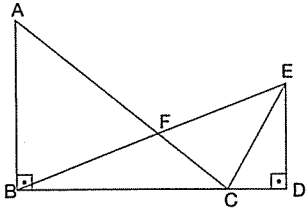
- A) 3 B) 6 C) 9 D) 12 E) 18

sonuç yayınları

1. C 2. A 3. B 4. C

Tabanları Eşit Üçgenler

Örnek



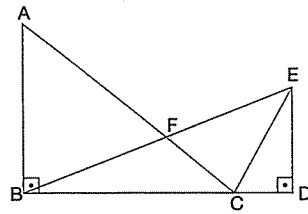
ABC ve EDB
dik üçgen
[ED] ⊥ [BD]
[AB] ⊥ [BD]
A(BEC) = 12 br²
 $\frac{|ED|}{|AB|} = \frac{2}{3}$

Yukarıdaki verilere göre, A(ABC) kaç br² dir?

- A) 9 B) 12 C) 16 D) 18 E) 21

Tabanları eşit olan iki üçgenlerin alanlarının oranı, yükseklikleri oranına eşittir.

Çözüm



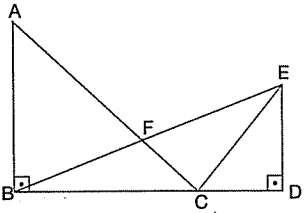
A(ABC) = 18 br² olur.

[BC] ortak taban
olmak üzere,
 $\frac{A(BCE)}{A(ABC)} = \frac{|DE|}{|AB|}$
 $\frac{12}{A(ABC)} = \frac{2}{3}$

Cevap D

TEST - 27

1.

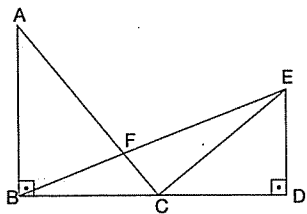


ABC ve EDB
dik üçgen
[ED] ⊥ [BD]
[AB] ⊥ [BD]
A(BCE) = 9 cm²
 $\frac{|AB|}{|DE|} = \frac{5}{3}$

Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 12 B) 15 C) 18 D) 21 E) 24

2.

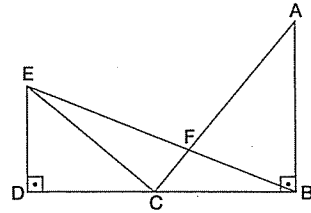


ABC ve EDB
dik üçgen
[AB] ⊥ [BD]
[ED] ⊥ [BD]
A(ABC) = 49 cm²
 $\frac{|AB|}{|DE|} = \frac{7}{4}$

Yukarıdaki verilere göre, A(BEC) kaç cm² dir?

- A) 14 B) 21 C) 28 D) 35 E) 42

3.

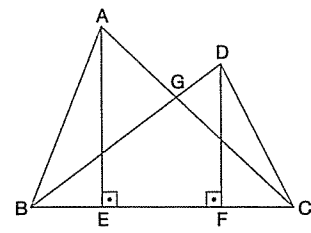


EDB ve ABC
dik üçgen
[ED] ⊥ [BD]
[AB] ⊥ [BD]
A(BEC) = 9 cm²
A(ABC) = 36 cm²

Yukarıdaki verilere göre, $\frac{|ED|}{|AB|}$ oranı kaçtır?

- A) $\frac{1}{8}$ B) $\frac{1}{4}$ C) $\frac{1}{2}$ D) $\frac{3}{4}$ E) $\frac{4}{5}$

4.



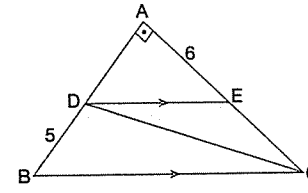
ABC ve BDC bir
üçgen
[AE] ⊥ [BC]
[DF] ⊥ [BC]
2|AE| = 3|DF|
A(ABG) = 36 cm²
A(GDC) = 9 cm²

Yukarıdaki verilere göre, A(BGC) kaç cm² dir?

- A) 27 B) 32 C) 38 D) 42 E) 45

Alan Taşıma - I

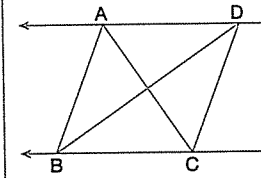
Örnek



ABC dik üçgen
[BA] ⊥ [AC]
[DE] // [BC]
|AE| = 6 cm
|DB| = 5 cm

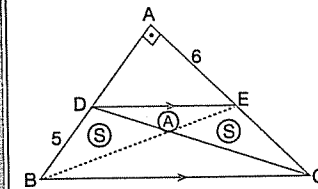
Yukarıdaki verilere göre, A(DEC) kaç cm² dir?

- A) 12 B) 15 C) 18 D) 20 E) 24



AD // BC ise,
A(ABC) = A(BCD) dir.

Çözüm



[BE] yi çizelim
 $A(BDE) = \frac{5 \cdot 6}{2}$
A(BDE) = 15 cm²

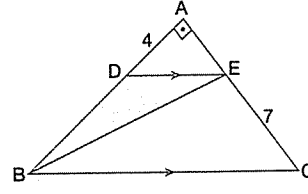
[DE] // [BC] olduğundan,
A(DCE) = A(BDE) dir.

Buna göre,
A(DCE) = 15 cm² olur.

Cevap B

TEST - 28

1.

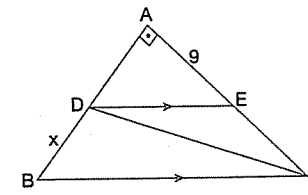


ABC dik üçgen
[AB] ⊥ [AC]
[DE] // [BC]
|EC| = 7 cm
|AD| = 4 cm

Yukarıdaki verilere göre, A(DEB) kaç cm² dir?

- A) 7 B) 12 C) 14 D) 18 E) 21

2.

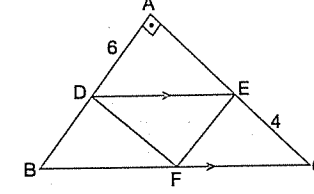


ABC dik üçgen
[AB] ⊥ [AC]
[DE] // [BC]
|AE| = 9 cm
A(DEC) = 27 cm²

Yukarıdaki verilere göre, |DB| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 6 E) 9

3.

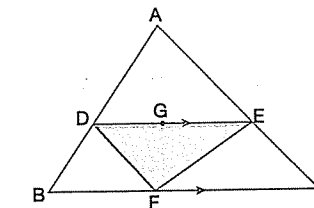


ABC dik üçgen
[AB] ⊥ [AC]
[DE] // [BC]
|AD| = 6 cm
|EC| = 4 cm

Yukarıdaki verilere göre, A(DEF) kaç cm² dir?

- A) 4 B) 6 C) 8 D) 10 E) 12

4.



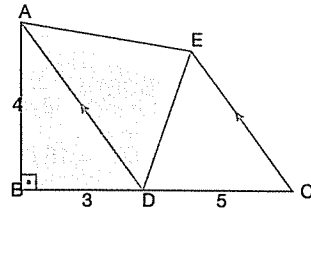
ABC bir üçgen
[DE] // [BC]
G, ağırlık
merkezi
A(DEF) = 4 br²

Yukarıdaki verilere göre, A(ABC) kaç br² dir?

- A) 18 B) 24 C) 36 D) 40 E) 48

Alan Taşıma - II

Örnek



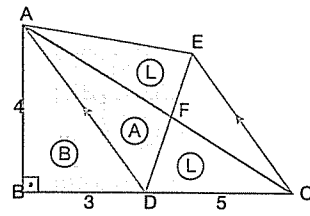
ABCE bir dörtgen
 $[AB] \perp [BC]$
 $[AD] \parallel [EC]$
 $|DC| = 5 \text{ cm}$
 $|AB| = 4 \text{ cm}$
 $|BD| = 3 \text{ cm}$

Yukarıdaki verilere göre, $A(ABDE)$ kaç cm^2 dir?

- A) 16 B) 18 C) 24 D) 32 E) 40



Çözüm



$[AC]$ yi çizelim
 $[AD] \parallel [EC]$
 olduğundan,
 $A(ADE) = A(ADC)$
 olur.

Buna göre,

$$A(ADC) = A + L \Rightarrow A(FDC) = L \text{ olur.}$$

$$A(ABDE) = B + A + L$$

Şekilde yerleştirdiğimiz alanlara göre,

$$A(ABC) = B + A + L \text{ olur.}$$

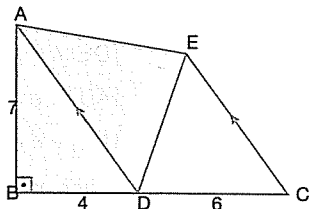
Buna göre,

$$A(ABDE) = A(ABC) = \frac{4 \cdot 8}{2} \Rightarrow A(ABDE) = 16 \text{ cm}^2 \text{ olur.}$$

Cevap A

TEST - 29

1.

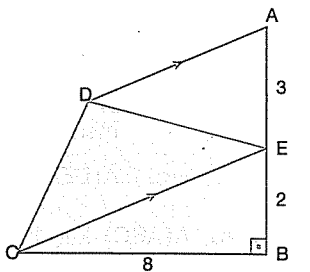


ABCE bir dörtgen
 $[AB] \perp [BC]$
 $[AD] \parallel [EC]$
 $|AB| = 7 \text{ cm}$
 $|DC| = 6 \text{ cm}$
 $|BD| = 4 \text{ cm}$

Yukarıdaki verilere göre, $A(ABDE)$ kaç cm^2 dir?

- A) 28 B) 35 C) 38 D) 42 E) 49

2.

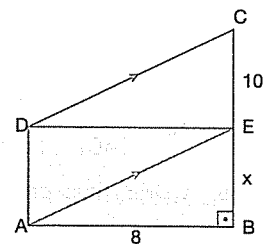


ABCD bir dörtgen
 $[AB] \perp [BC]$
 $[AD] \parallel [EC]$
 $|CB| = 8 \text{ br}$
 $|AE| = 3 \text{ br}$
 $|EB| = 2 \text{ br}$

Yukarıdaki verilere göre, $A(BEDC)$ kaç br^2 dir?

- A) 5 B) 10 C) 12 D) 16 E) 20

3.

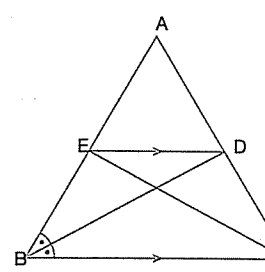


ABCD bir dörtgen
 $[AB] \perp [BC]$
 $[DC] \parallel [AE]$
 $|EC| = 10 \text{ cm}$
 $|AB| = 8 \text{ cm}$
 $A(ABED) = 48 \text{ cm}^2$

Yukarıdaki verilere göre, $|EB| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 5

4.



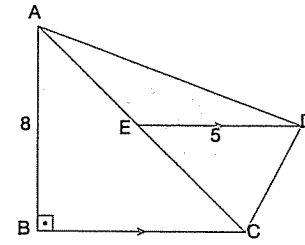
ABC bir üçgen
 $[BD]$ açıortay
 $[ED] \parallel [BC]$
 $\frac{|AB|}{|BC|} = \frac{2}{3}$
 $A(ECD) = 9 \text{ br}^2$

Yukarıdaki verilere göre, $A(ABD)$ kaç br^2 dir?

- A) 10 B) 12 C) 15 D) 18 E) 21

Alan Taşıma - III

Örnek



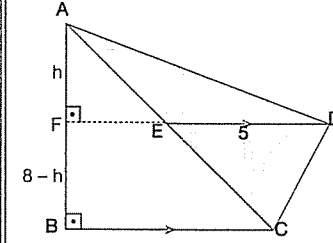
ABCD bir dörtgen
 $[AB] \perp [BC]$
 $[ED] \parallel [BC]$
 $|AB| = 8 \text{ cm}$
 $|ED| = 5 \text{ cm}$

Yukarıdaki verilere göre, $A(ACD)$ kaç cm^2 dir?

- A) 12 B) 18 C) 20 D) 24 E) 30



Çözüm



$[DF]$ yi çizelim
 $[ED] \parallel [BC]$
 olduğundan,
 $[DF] \perp [AB]$ olur.
 $|AF| = h$ dersek
 $|FB| = 8 - h$ olur.

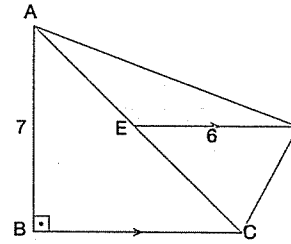
$$A(ACD) = A(AED) + A(DEC)$$

$$A(ACD) = \frac{5 \cdot h}{2} + \frac{5 \cdot (8 - h)}{2} = \frac{5 \cdot h}{2} + \frac{5 \cdot 8}{2} - \frac{5 \cdot h}{2} = 20 \text{ cm}^2 \text{ olur.}$$

Cevap C

TEST - 30

1.

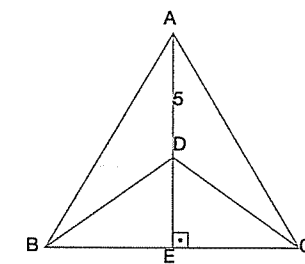


ABCD bir dörtgen
 $[AB] \perp [BC]$
 $[ED] \parallel [BC]$
 $|AB| = 7 \text{ cm}$
 $|ED| = 6 \text{ cm}$

Yukarıdaki verilere göre, $A(ACD)$ kaç cm^2 dir?

- A) 18 B) 21 C) 24 D) 28 E) 35

3.

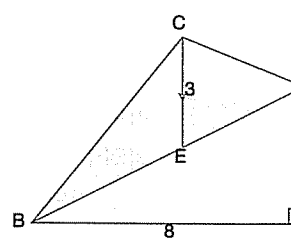


ABC bir üçgen
 $[AE] \perp [BC]$
 $|BC| = 12 \text{ cm}$
 $|AD| = 5 \text{ cm}$

Yukarıdaki verilere göre, $A(ABCD)$ kaç cm^2 dir?

- A) 9 B) 12 C) 15 D) 20 E) 30

2.

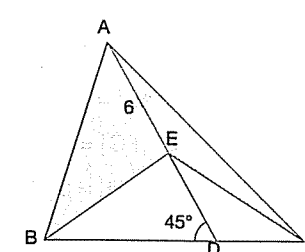


ABCD bir dörtgen
 $[AB] \perp [AD]$
 $[EC] \parallel [AD]$
 $|AB| = 8 \text{ cm}$
 $|EC| = 3 \text{ cm}$

Yukarıdaki verilere göre, $A(BCD)$ kaç cm^2 dir?

- A) 6 B) 9 C) 12 D) 15 E) 24

4.



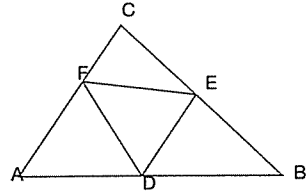
ABC bir üçgen
 $m(\widehat{ADB}) = 45^\circ$
 $|BC| = 9\sqrt{2} \text{ cm}$
 $|AE| = 6 \text{ cm}$

Yukarıdaki verilere göre, $A(ABEC)$ kaç cm^2 dir?

- A) $14\sqrt{2}$ B) 18 C) 21 D) 27 E) $27\sqrt{2}$

Özel Durum

Örnek



ABC bir üçgen

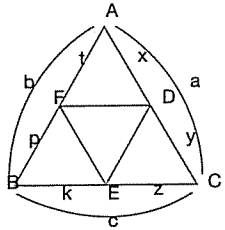
$$\frac{|AD|}{|DB|} = \frac{2}{3}$$

$$\frac{|BE|}{|EC|} = 2$$

$$\frac{|CF|}{|AF|} = \frac{1}{3}$$

Yukarıdaki verilere göre, $\frac{A(FED)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{13}{60}$ B) $\frac{23}{60}$ C) $\frac{7}{15}$ D) $\frac{2}{3}$ E) $\frac{53}{60}$

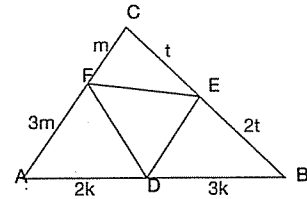


ABC üçgeninde,

$$\frac{A(DEF)}{A(ABC)} = \frac{x \cdot z \cdot p + y \cdot t \cdot k}{a \cdot b \cdot c} \text{ dir.}$$



Çözüm



ABC üçgeninde,

$$\frac{|AD|}{|DB|} = \frac{2}{3} \Rightarrow |AD| = 2k$$

$$\text{ve } |DB| = 3k$$

$$\frac{|BE|}{|EC|} = 2 \Rightarrow |BE| = 2t \text{ ve } |EC| = t$$

$$\frac{|CF|}{|AF|} = \frac{1}{3} \Rightarrow |CF| = m \text{ ve } |AF| = 3m \text{ olur.}$$

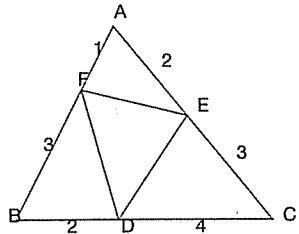
$$\frac{A(FED)}{A(ABC)} = \frac{2k \cdot 2t \cdot m + 3k \cdot t \cdot 3m}{3t \cdot 5k \cdot 4m} = \frac{4ktm + 9ktm}{60ktm} = \frac{13ktm}{60ktm}$$

$$= \frac{13}{60} \text{ olur.}$$

Cevap A

TEST - 31

1.



ABC bir üçgen

$$|DC| = 4 \text{ br}$$

$$|EC| = |BF| = 3 \text{ br}$$

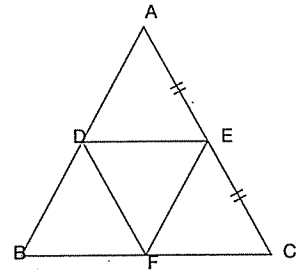
$$|AE| = |BD| = 2 \text{ br}$$

$$|AF| = 1 \text{ br}$$

Yukarıdaki verilere göre, $\frac{A(FDE)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{1}{4}$ B) $\frac{1}{2}$ C) $\frac{3}{4}$ D) $\frac{5}{6}$ E) $\frac{7}{8}$

2.



ABC bir üçgen

$$|AE| = |EC|$$

$$2|FC| = |BF|$$

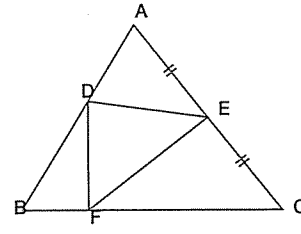
$$2|AD| = 3|BD|$$

$$A(DEF) = 4 \text{ br}^2$$

Yukarıdaki verilere göre, A(ABC) kaç br² dir?

- A) 10 B) 12 C) 15 D) 21 E) 25

3.



ABC bir üçgen

$$2|AD| = |DB|$$

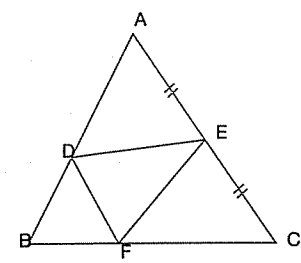
$$4|BF| = |FC|$$

$$|AE| = |EC|$$

Yukarıdaki verilere göre, $\frac{A(DEF)}{A(ABC)}$ oranı kaçtır?

- A) $\frac{1}{10}$ B) $\frac{1}{5}$ C) $\frac{3}{10}$ D) $\frac{7}{9}$ E) $\frac{8}{9}$

4.



ABC bir üçgen

$$5|DB| = |AD|$$

$$3|BF| = |FC|$$

$$|AE| = |EC|$$

$$A(ABC) = 24 \text{ cm}^2$$

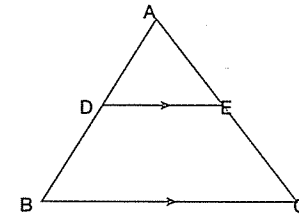
Yukarıdaki verilere göre, A(DEF) kaç cm² dir?

- A) 2 B) 4 C) 6 D) 8 E) 10

1. A 2. C 3. C 4. B

Benzerlik - Alan İlişkisi

Örnek



ABC bir üçgen

$$[DE] \parallel [BC]$$

$$A(ADE) = 9 \text{ cm}^2$$

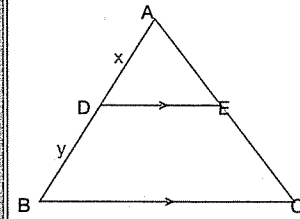
$$A(DBCE) = 16 \text{ cm}^2$$

Yukarıdaki verilere göre, $\frac{|AD|}{|DB|}$ oranı kaçtır?

- A) $\frac{1}{3}$ B) $\frac{1}{2}$ C) 1 D) $\frac{3}{2}$ E) 2



Çözüm



$$[DE] \parallel [BC]$$

Temel benzerlik teoremine göre,

$$\widehat{ADE} \sim \widehat{ABC} \text{ dir.}$$

$$\left[\frac{|AD|}{|AB|} \right]^2 = \frac{A(ADE)}{A(ABC)}$$

$$\left(\frac{x}{x+y} \right)^2 = \frac{9}{25} \Rightarrow \frac{x}{x+y} = \frac{3}{5} \Rightarrow 5x = 3x + 3y$$

$$\Rightarrow 2x = 3y$$

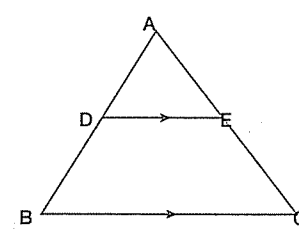
$$\Rightarrow \frac{x}{y} = \frac{3}{2} \text{ dir.}$$

Buna göre, $\frac{|AD|}{|DB|} = \frac{x}{y} = \frac{3}{2}$ olur.

Cevap D

TEST - 32

1.



ABC bir üçgen

$$[DE] \parallel [BC]$$

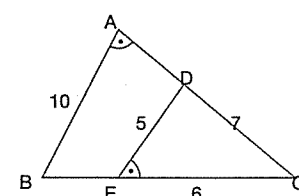
$$A(ADE) = 4 \text{ cm}^2$$

$$A(DBCE) = 60 \text{ cm}^2$$

Yukarıdaki verilere göre, $\frac{|AE|}{|EC|}$ oranı kaçtır?

- A) $\frac{1}{3}$ B) $\frac{2}{3}$ C) $\frac{3}{4}$ D) $\frac{4}{5}$ E) 1

3.



ABC bir üçgen

$$m(\widehat{BAC}) = m(\widehat{DEC})$$

$$|AB| = 10 \text{ br}$$

$$|DC| = 7 \text{ br}$$

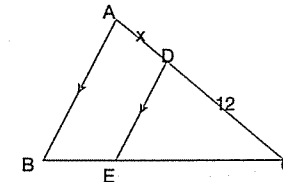
$$|EC| = 6 \text{ br}$$

$$|ED| = 5 \text{ br}$$

Yukarıdaki verilere göre, A(ABC) kaç br² dir?

- A) $10\sqrt{6}$ B) $12\sqrt{6}$ C) 32
D) $24\sqrt{6}$ E) 54

2.



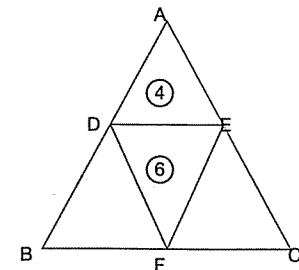
ABC bir üçgen, $[DE] \parallel [AB]$

$$7 \cdot A(DEC) = 9 \cdot A(ABED), |DC| = 12 \text{ cm}$$

Yukarıdaki verilere göre, |AD| = x kaç cm dir?

- A) 2 B) 4 C) 6 D) 9 E) 15

4.



ABC bir üçgen

$$[DE] \parallel [BC]$$

$$A(DEF) = 6 \text{ cm}^2$$

$$A(ADE) = 4 \text{ cm}^2$$

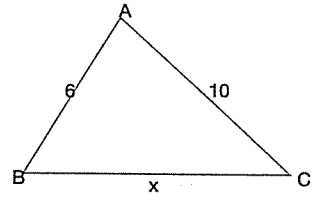
Yukarıdaki verilere göre, A(ABC) kaç cm² dir?

- A) 15 B) 18 C) 21 D) 25 E) 30

1. A 2. B 3. D 4. D

Alanın Max - Min Olması

Örnek

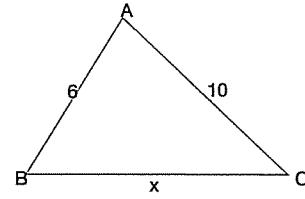


ABC bir üçgen
|AC| = 10 br
|AB| = 6 br

Yukarıdaki verilere göre, A(ABC) en büyük değerini aldığı anda |BC| = x kaç br olur?

- A) $6\sqrt{2}$ B) 9 C) $6\sqrt{3}$
D) $8\sqrt{2}$ E) $2\sqrt{34}$

Çözüm



A(ABC) en büyük değerini,
 $m(\hat{A}) = 90^\circ$ olunca alır.

Buna göre, $m(\hat{A}) = 90^\circ$

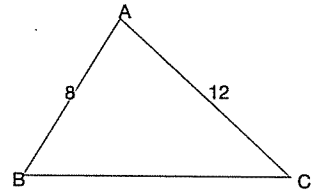
$$\Rightarrow x^2 = 6^2 + 10^2 \text{ (Pisagor)}$$

$$\Rightarrow x^2 = 136 \Rightarrow x = 2\sqrt{34} \text{ br olur.}$$

Cevap E

TEST - 33

1.

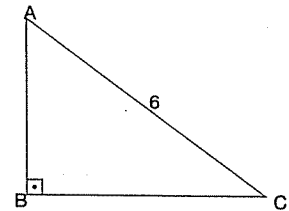


ABC bir üçgen
|AC| = 12 cm
|AB| = 8 cm

Yukarıdaki verilere göre, A(ABC) nin en büyük değeri kaçtır?

- A) 24 B) 32 C) 48 D) 54 E) 72

2.

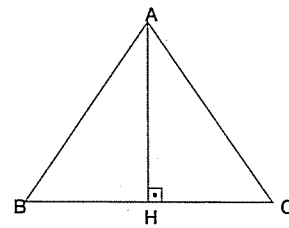


ABC dik üçgen
|AB| $\perp$ |BC|
|AC| = 6 cm

Yukarıdaki verilere göre, A(ABC) nin en büyük değeri kaçtır?

- A) 3 B) 4 C) 6 D) 9 E) 15

3.

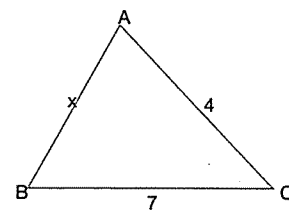


ABC bir üçgen
|AH| $\perp$ |BC|
|AH| + |BC| = 12 cm

Yukarıdaki verilere göre, A(ABC) nin en büyük değeri kaçtır?

- A) 12 B) 16 C) 18 D) 24 E) 36

4.



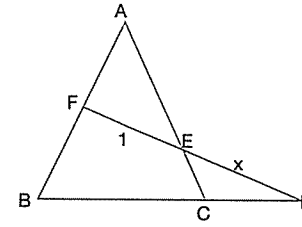
ABC bir üçgen
|BC| = 7 cm
|AC| = 4 cm

Yukarıdaki verilere göre, A(ABC) en büyük değerini aldığı anda |AB| = x kaç cm olur?

- A) $\sqrt{65}$ B) 8 C) $3\sqrt{5}$ D) $\sqrt{35}$ E) $3\sqrt{3}$

Menelaus Teoremi

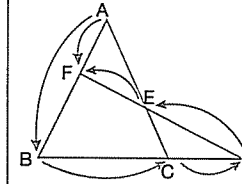
Örnek



ABC ve DFB
bir üçgen
|AF| = |FB|
 $\frac{|CD|}{|BC|} = \frac{1}{3}$
|FE| = 1 br

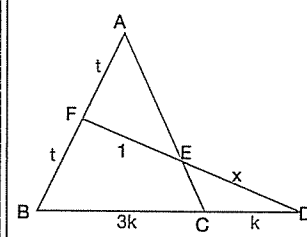
Yukarıdaki verilere göre, |ED| = x kaç cm dir?

- A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) 1 D) $\frac{3}{2}$ E) 2



$$\frac{|AF|}{|AB|} \cdot \frac{|BC|}{|CD|} \cdot \frac{|DE|}{|EF|} = 1 \text{ dir.}$$

Çözüm



$\frac{|CD|}{|BC|} = \frac{1}{3}$ ise,
|CD| = k
|BC| = 3k olur.
|AF| = |FB| ise,
|AF| = |FB| = t dersek;

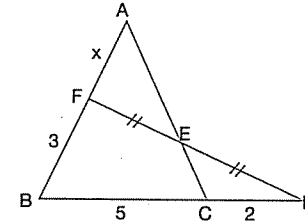
Menelaus Teoreminden,

$$\frac{t}{2t} \cdot \frac{3k}{k} \cdot \frac{x}{1} = 1 \Rightarrow x = \frac{2}{3} \text{ br bulunur.}$$

Cevap B

TEST - 1

1.

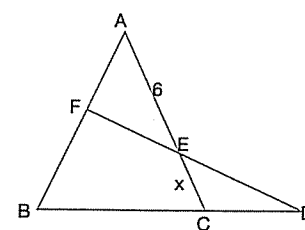


ABC ve FBD
bir üçgen
|ED| = |EF|
|BC| = 5 cm
|FB| = 3 cm
|CD| = 2 cm

Yukarıdaki verilere göre, |AF| = x kaç cm dir?

- A) 2 B) 3 C) 4 D) 6 E) 8

2.

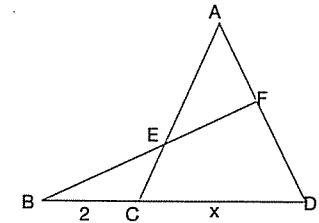


ABC ve FBD
bir üçgen
 $\frac{|CD|}{|BC|} = \frac{1}{7}$
 $\frac{|FB|}{|AB|} = \frac{2}{3}$
|AE| = 6 cm

Yukarıdaki verilere göre, |EC| = x kaç cm dir?

- A) $\frac{1}{2}$ B) $\frac{2}{3}$ C) $\frac{3}{2}$ D) 2 E) 3

3.

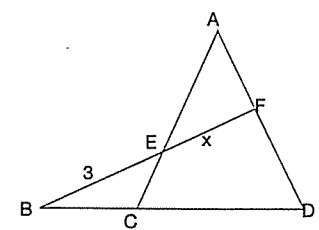


ADC ve DFB
bir üçgen
 $\frac{|FD|}{|AF|} = \frac{3}{2}$
 $\frac{|AE|}{|EC|} = 2$
|BC| = 2 cm

Yukarıdaki verilere göre, |BC| = x kaç cm dir?

- A) $\frac{3}{2}$ B) 2 C) 3 D) 4 E) 5

4.



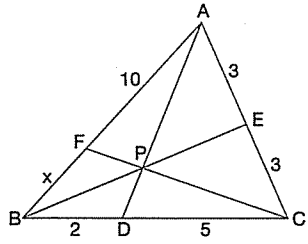
ADC ve DFB
bir üçgen
 $\frac{|BC|}{|CD|} = \frac{1}{2}$
 $\frac{|EC|}{|AE|} = \frac{2}{3}$
|BE| = 3 cm

Yukarıdaki verilere göre, |EF| = x kaç cm dir?

- A) 1 B) 2 C) 3 D) 4 E) 6

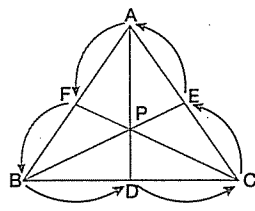
Seva Teoremi

Örnek



ABC bir üçgen, $[AD] \cap [BE] \cap [CF] = \{P\}$
 $|AF| = 10 \text{ cm}$, $|DC| = 5 \text{ cm}$
 $|EC| = |AE| = 3 \text{ cm}$, $|BD| = 2 \text{ cm}$
 Yukarıdaki verilere göre, $|FB| = x$ kaç cm dir?
 A) 1 B) 2 C) 3 D) 4 E) 5

Çözüm



$$\frac{|AF|}{|FB|} \cdot \frac{|BD|}{|DC|} \cdot \frac{|EC|}{|AE|} = 1 \text{ dir.}$$

Seva Teoreminden,

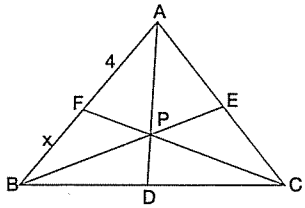
$$\frac{10}{x} \cdot \frac{2}{5} \cdot \frac{3}{3} = 1$$

$x = 4 \text{ cm}$ bulunur.

Cevap D

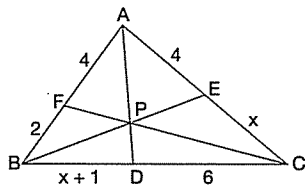
TEST - 2

1.



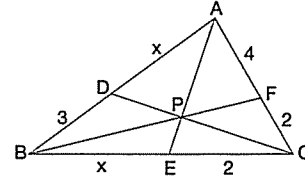
ABC bir üçgen, $[AD] \cap [BE] \cap [CF] = \{P\}$
 $\frac{|BD|}{|DC|} = \frac{3}{2}$, $\frac{|EC|}{|AE|} = \frac{1}{2}$, $|AF| = 4 \text{ br}$
 Yukarıdaki verilere göre, $|FB| = x$ kaç br dir?
 A) $\frac{3}{2}$ B) 3 C) 4 D) 6 E) 9

2.



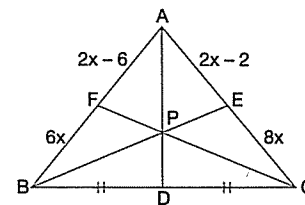
ABC bir üçgen, $[AD] \cap [BE] \cap [CF] = \{P\}$
 $|DC| = 6 \text{ cm}$, $|AF| = |AE| = 4 \text{ cm}$, $|FB| = 2 \text{ cm}$
 $|BD| = x + 1$, $|EC| = x$
 Yukarıdaki verilere göre, $|BD|$ kaç cm dir?
 A) $\frac{2}{3}$ B) $\frac{3}{2}$ C) 3 D) 4 E) 5

3.



ABC bir üçgen, $[AE] \cap [BF] \cap [CD] = \{P\}$
 $|AF| = 4 \text{ cm}$, $|DB| = 3 \text{ cm}$, $|FC| = |EC| = 2 \text{ cm}$
 Yukarıdaki verilere göre, $|AD| = |BE| = x$ kaç cm dir?
 A) 2 B) $2\sqrt{3}$ C) 4 D) $3\sqrt{2}$ E) $2\sqrt{6}$

4.

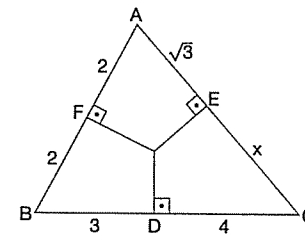


ABC bir üçgen, $[AD] \cap [BE] \cap [CF] = \{P\}$
 $|EC| = 8x$, $|FB| = 6x$, $|AF| = 2x - 6$
 $|AE| = 2x - 2$
 Yukarıdaki verilere göre, x kaç cm dir?
 A) 6 B) 9 C) 12 D) 14 E) 18

1. B 2. D 3. B 4. B

Carnot Teoremi

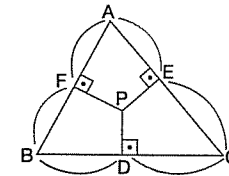
Örnek



ABC bir üçgen
 $|DC| = 4 \text{ cm}$
 $|BD| = 3 \text{ cm}$
 $|AF| = |FB| = 2 \text{ cm}$
 $|AE| = \sqrt{3} \text{ cm}$

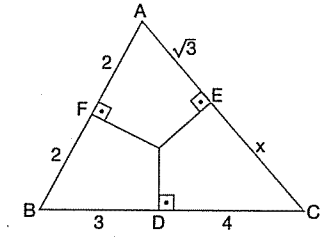
Yukarıdaki verilere göre, $|EC| = x$ kaç cm dir?

A) 1 B) $2\sqrt{2}$ C) $\sqrt{10}$ D) $2\sqrt{3}$ E) 4



$$|AF|^2 + |BD|^2 + |EC|^2 = |FB|^2 + |DC|^2 + |AE|^2$$

Çözüm

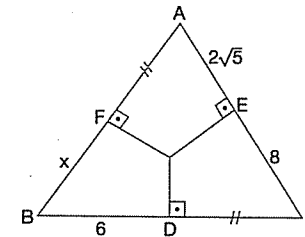


Carnot Teoreminden,
 $2^2 + 3^2 + x^2 = 2^2 + 4^2 + (\sqrt{3})^2$
 $x = \sqrt{10} \text{ cm}$ bulunur.

Cevap C

TEST - 3

1.

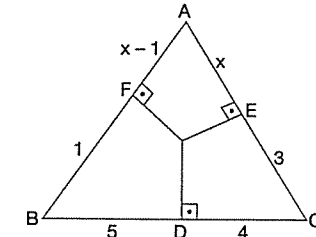


ABC bir üçgen
 $|DC| = |AF|$
 $|EC| = 8 \text{ br}$
 $|BD| = 6 \text{ br}$
 $|AE| = 2\sqrt{5} \text{ br}$

Yukarıdaki verilere göre, $|FB| = x$ kaç br dir?

A) $2\sqrt{5}$ B) 5 C) 6 D) $5\sqrt{2}$ E) $4\sqrt{5}$

2.



ABC bir üçgen
 $|BD| = 5 \text{ cm}$
 $|DC| = 4 \text{ cm}$
 $|EC| = 3 \text{ cm}$
 $|FB| = 1 \text{ cm}$
 $|AF| = (x - 1)$
 $|AE| = x$

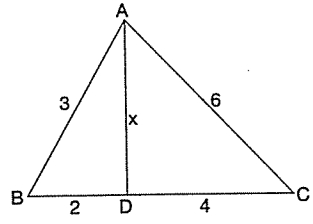
Yukarıdaki verilere göre, $|AC|$ kaç cm dir?

A) 6 B) 9 C) 10 D) 12 E) 14

1. E 2. D

Stewart Teoremi

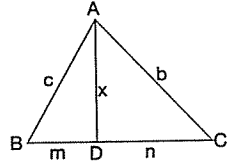
Örnek



ABC bir üçgen
 $|AC| = 6$ cm
 $|DC| = 4$ cm
 $|AB| = 3$ cm
 $|BD| = 2$ cm

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

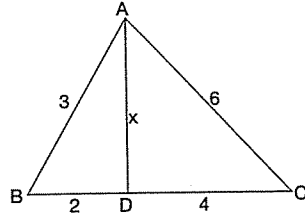
- A) 5 B) $3\sqrt{2}$ C) $\sqrt{15}$ D) $\sqrt{10}$ E) 3



$$x^2 = \frac{c^2n + b^2m}{m+n} - m \cdot n$$



Çözüm



Stewart Teoreminden,

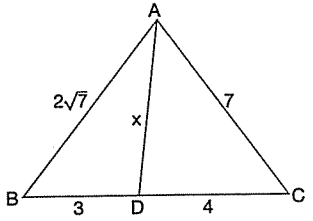
$$x^2 = \frac{3^2 \cdot 4 + 6^2 \cdot 2}{2 + 4} - 4 \cdot 2$$

$x = \sqrt{10}$ cm bulunur.

Cevap D

TEST - 4

1.

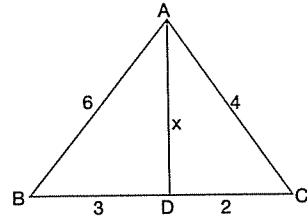


ABC bir üçgen
 $|AC| = 7$ cm
 $|AB| = 2\sqrt{7}$ cm
 $|DC| = 4$ cm
 $|BD| = 3$ cm

Yukarıdaki verilere göre, x kaç cm dir?

- A) $2\sqrt{3}$ B) 4 C) $2\sqrt{5}$ D) 5 E) 6

3.

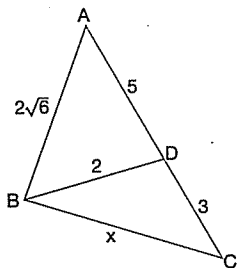


ABC bir üçgen
 $|AB| = 6$ cm
 $|AC| = 4$ cm
 $|BD| = 3$ cm
 $|DC| = 2$ cm

Yukarıdaki verilere göre, $|AD| = x$ kaç cm dir?

- A) $\sqrt{10}$ B) $2\sqrt{3}$ C) 4 D) $3\sqrt{2}$ E) $2\sqrt{6}$

2.

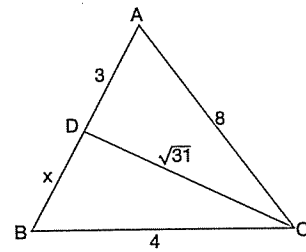


ABC bir üçgen
 $|AD| = 5$ cm
 $|AB| = 2\sqrt{6}$ cm
 $|DC| = 3$ cm
 $|BD| = 2$ cm

Yukarıdaki verilere göre, $|BC| = x$ kaç cm dir?

- A) 1 B) 2 C) 3 D) $2\sqrt{3}$ E) 4

4.



ABC bir üçgen
 $|AC| = 8$ cm
 $|DC| = \sqrt{31}$ cm
 $|BC| = 4$ cm
 $|AD| = 3$ cm

Yukarıdaki verilere göre, $|DB| = x$ kaç cm dir?

- A) 2 B) 3 C) $2\sqrt{3}$ D) $\sqrt{15}$ E) $3\sqrt{2}$