

AÇI

1. $2.m(\hat{A}) = 72^\circ 84' 68'' = 71^\circ 144' 68''$

$3.m(\hat{B}) = 63^\circ 99' 63'' = 63^\circ 99' 63''$

$2m(\hat{A}) - 3m(\hat{B}) = 8^\circ 45' 05''$

Cevap: A

2. $x + (6y - x) = 90$

$6y = 90$

$y = 15^\circ$

$y + (5y + 2x) = 180$

$6y + 2x = 180$

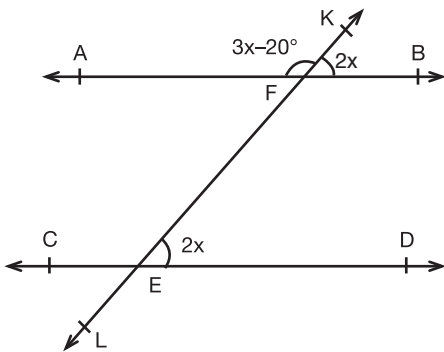
$6 \cdot 15 + 2x = 180$

$2x = 90$

$x = 45^\circ$

$x + y = 45 + 15 = 60^\circ$

3.



$m(\hat{FED}) = m(\hat{KFB})$ (Yöndeş açılar)

$m(\hat{KFA}) + m(\hat{KFB}) = 180^\circ$ (Bütünler açılar)

$3x - 20 + 2x = 180$

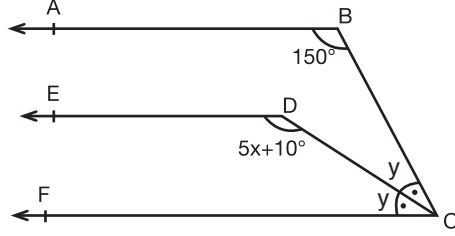
$5x = 200$

$x = 40^\circ$

$m(\hat{KFB}) = 2x = 2 \cdot 40 = 80$

Cevap: E

4.



$m(\hat{ABC}) + m(\hat{BCF}) = 180$ (Karşı durumlu açılar)

$150 + 2y = 180$

$y = 15$

$m(\hat{EDC}) + m(\hat{DCF}) = 180^\circ$ (Karşı durumlu açılar)

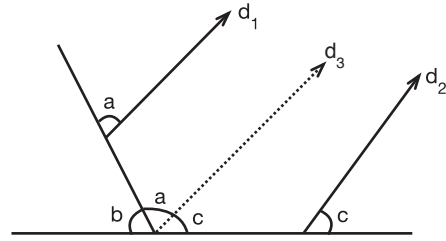
$5x + 10 + 15 = 180$

$5x = 155$

$x = 31^\circ$

Cevap: C

5.



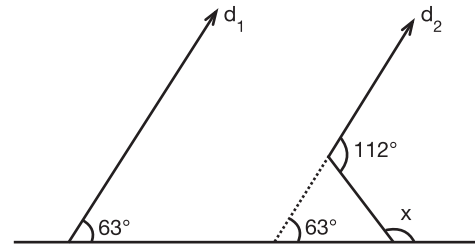
$a + c = 150$

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

$a + c = 150^\circ \Rightarrow b = 30^\circ$

Cevap: C

6.



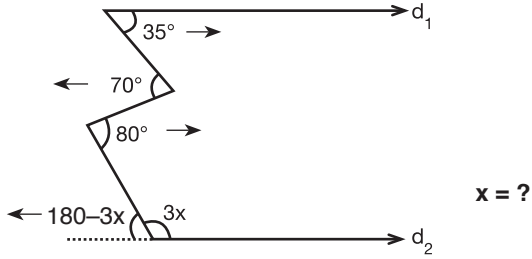
$x = ?$

$x = 68 + 63 = 131^\circ$

Cevap: D

AÇI

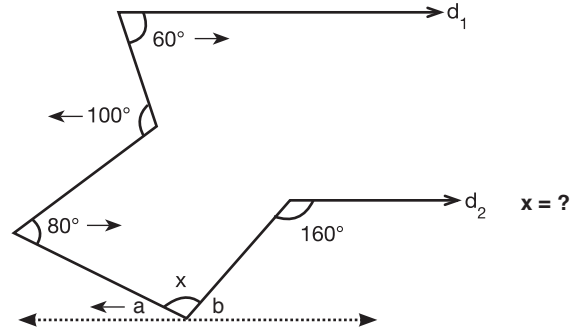
7.



$$\begin{aligned} 35 + 80 &= 70 + (180 - 3x) \\ 115 &= 250 - 3x \\ 3x &= 135 \\ x &= 45^\circ \end{aligned}$$

Cevap: D

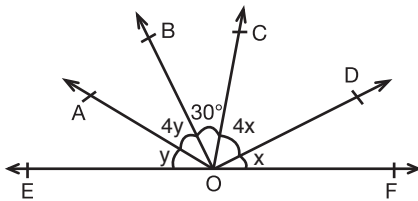
9.



$$\begin{aligned} 60 + 80 &= 100 + a & 160 + b &= 180^\circ \\ a &= 40^\circ & b &= 20^\circ \\ x + a + b &= 180 \\ x + 40 + 20 &= 180 & \Rightarrow & x = 120^\circ \end{aligned}$$

Cevap: B

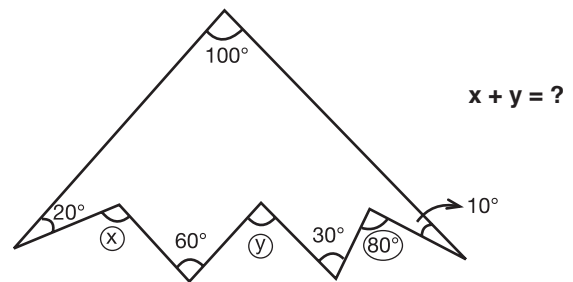
8.



$$\begin{aligned} 4m(\widehat{FOD}) &= m(\widehat{COD}) \\ 4m(\widehat{EOA}) &= m(\widehat{AOB}) \\ 5y + 30 + 5x &= 180 \\ 5(x + y) &= 150 \\ x + y &= 30 \\ m(\widehat{AOD}) &= ? \\ m(\widehat{AOD}) &= 4x + 4y + 30 \\ &= 4(x + y) + 30 \\ &= 4 \cdot 30 + 30 \\ &= 150 \end{aligned}$$

Cevap: D

10.



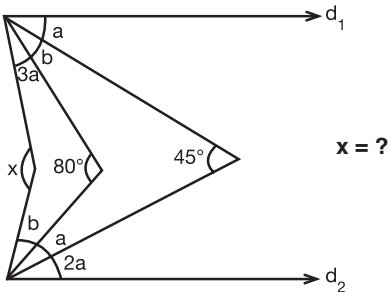
Kural: Şeklin içindeki açılar toplamı, dışındaki açılar toplamına eşittir.

$$\begin{aligned} 100 + 20 + 60 + 30 + 10 &= x + y + 80 \\ x + y &= 140^\circ \end{aligned}$$

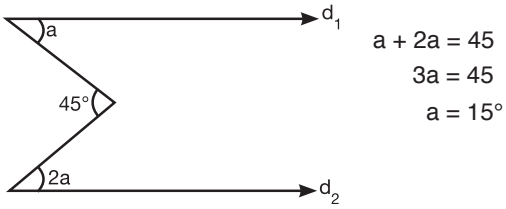
Cevap: A

AÇI

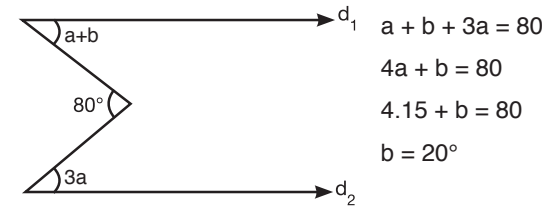
11.



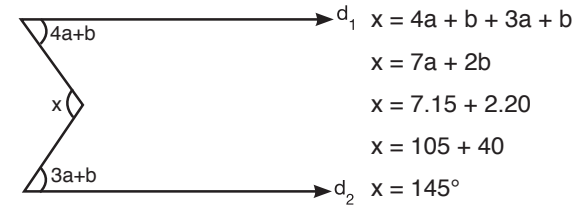
$x = ?$



$$\begin{aligned} a + 2a &= 45 \\ 3a &= 45 \\ a &= 15^\circ \end{aligned}$$



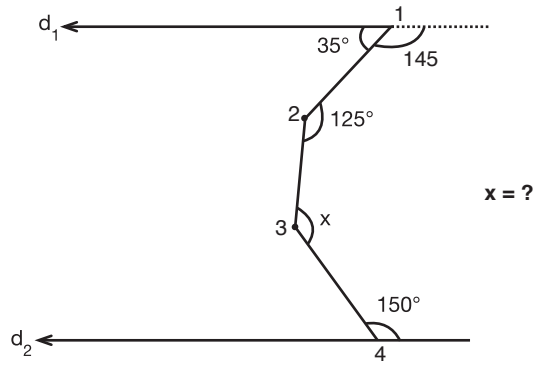
$$\begin{aligned} a + b + 3a &= 80 \\ 4a + b &= 80 \\ 4 \cdot 15 + b &= 80 \\ b &= 20^\circ \end{aligned}$$



$$\begin{aligned} x &= 4a + b + 3a + b \\ x &= 7a + 2b \\ x &= 7 \cdot 15 + 2 \cdot 20 \\ x &= 105 + 40 \\ x &= 145^\circ \end{aligned}$$

Cevap: B

12.



$x = ?$

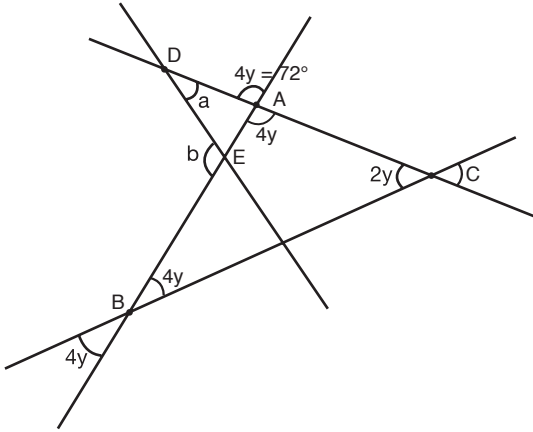
KURAL: İki paralel doğru arasında kalan ve aynı yöne bakan açılarının toplamı:
(Kırık nokta sayısı - 1).180

$$\begin{aligned} \text{Kırık nokta sayısı} &= 4 \\ x + 145 + 125 + 150 &= (4-1) \cdot 180 \\ x &= 120 \end{aligned}$$

Cevap: C

AÇI – ÜÇGENDE AÇI

1.



ABC üçgeninin iç açıları toplamı 180° olduğundan

$$4y + 4y + 2y = 180 \Rightarrow y = 18$$

$$4y = 72$$

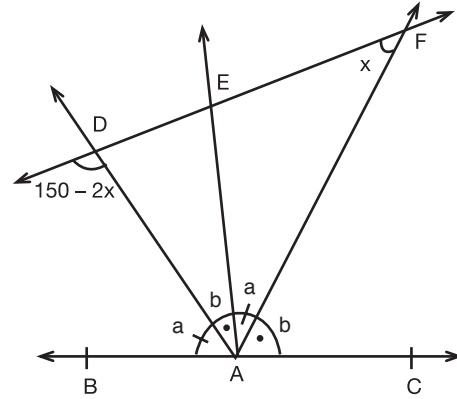
ADE üçgeninde iki iç açının toplamı kendilerine komşu olmayan bir dış açıya eşit olacağından,

$$a + 108 = b \Rightarrow b - a = 108^\circ \text{ dir.}$$

$$\begin{array}{r} b + a = 132 \\ + \quad b - a = 108 \\ \hline 2b = 240 \end{array}$$

$$b = 120, \quad a = 12^\circ \text{ dir.}$$

3.



$$2a + 2b = 180 \Rightarrow a + b = 90^\circ \text{ dir.}$$

$$m(\widehat{DAF}) = 90^\circ$$

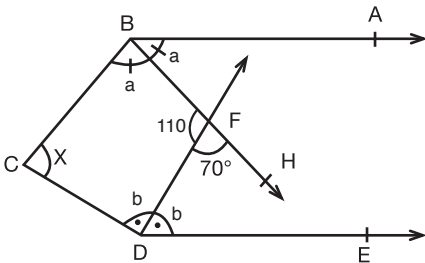
$$x + 90 = 150 - 2x \quad (\widehat{DAF})$$

$$3x = 60$$

$$x = 20^\circ$$

Cevap: C

2.



$$2a + x + 2b = 360 \quad \text{ve} \quad a + b + x + 110 = 360$$

(-1 ile çarp)

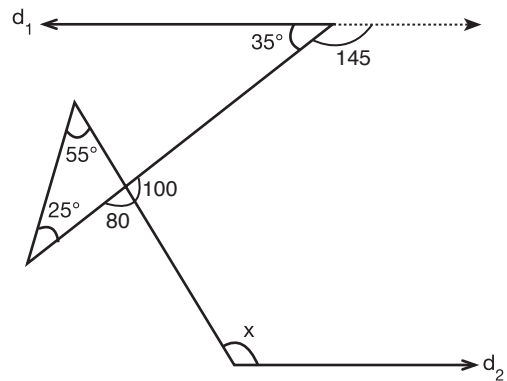
$$a + b + x = 250^\circ$$

(2 ile genişlet)

$$\begin{array}{r} 2a + 2b + 2x = 500 \\ + \quad -2a - 2b - x = -360 \\ \hline x = 140 \end{array}$$

Cevap: E

4.

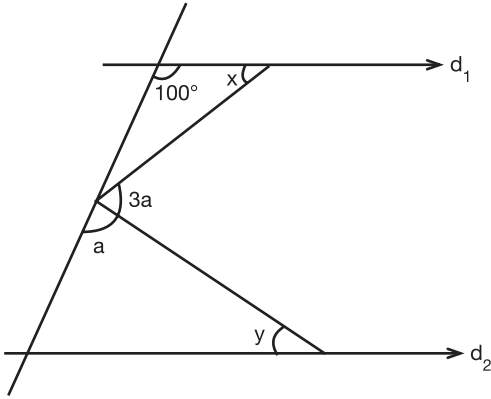


$$145 + 100 + x = 360 \Rightarrow x = 115^\circ$$

Cevap: C

AÇI – ÜÇGENDE AÇI

5.



$$3 / x + 100 = 4a \Rightarrow 3x + 300 = 12a$$

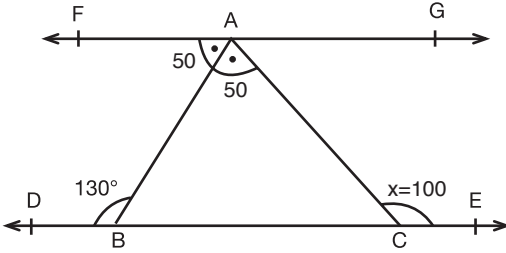
$$4 / x + y = 3a \Rightarrow 4x + 4y = 12a$$

$$3x + 300 = 4x + 4y$$

$$x + 4y = 300$$

Cevap: D

6.

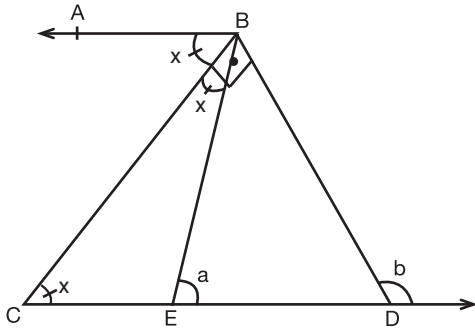


$$m(\widehat{FAB}) = 50 \text{ (Karşı durumlu açılar)}$$

$$m(\widehat{FAC}) = m(\widehat{ACE}) \text{ (İç ters açılar)}$$

Cevap: B

7.



$$b = 90 + x$$

$$a = 2x$$

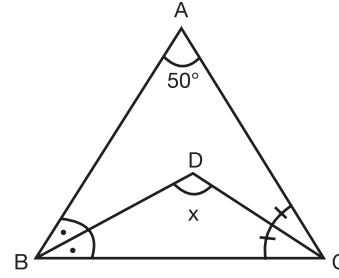
$$x = b - 90$$

$$a = 2(b - 90)$$

$$a = 2b - 180$$

Cevap: A

8.



I. yol:

$$x = 90 + \frac{m(\widehat{A})}{2} \Rightarrow x = 90 + \frac{50}{2}$$

$$x = 115^\circ$$

II. yol:

$$50 + 2a + 2b = 180$$

$$2a + 2b = 130$$

$$2(a + b) = 130$$

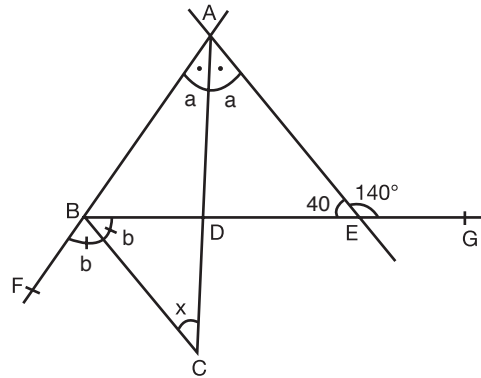
$$a + b = 65$$

$$x + \underbrace{a + b}_{65} = 180^\circ$$

$$x = 115^\circ$$

Cevap: C

9.



I. yol:

$$x = \frac{m(\widehat{AEB})}{2} = \frac{40}{2} = 20^\circ$$

II. yol:

$$2a + 40 = 2b \Rightarrow 2b - 2a = 40 \text{ } (\widehat{AEB})$$

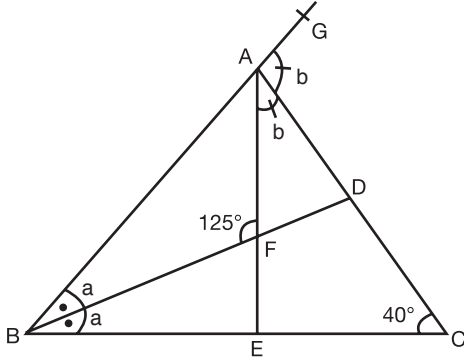
$$b - a = 20$$

$$a + x = b \Rightarrow x = b - a = 20^\circ \text{ } (\widehat{ABC})$$

Cevap: B

AÇI – ÜÇGENDE AÇI

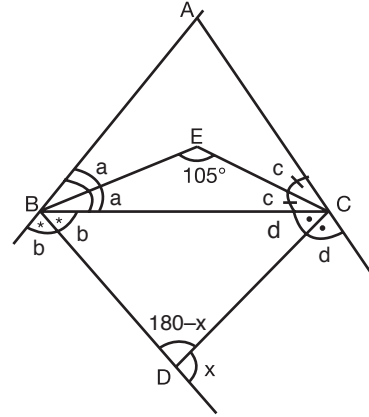
10.



$$\begin{aligned} \bullet 2a + 40 &= b \quad (\widehat{ABC}) & \bullet a + b + 40 &= 125 \\ & & a + b &= 85 \\ & & b &= 85 - a \\ \Rightarrow 2a + 40 &= 85 - a & m(\widehat{ABC}) &= 2a = 30^\circ \\ 3a &= 45 \\ a &= 15 \end{aligned}$$

Cevap: E

12.

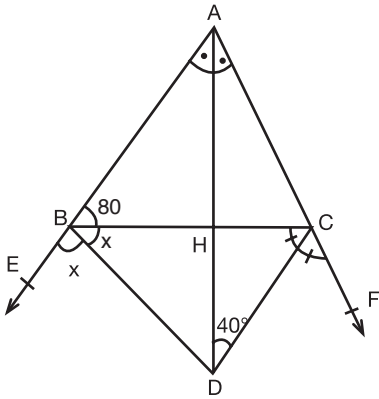


$$\begin{aligned} 2a + 2b &= 180 & 2c + 2d &= 180 \\ a + b &= 90 & c + d &= 90 \end{aligned}$$

$$\begin{aligned} \text{EBCD dörtgeninin iç açıları toplamı } 360^\circ \text{ dir.} \\ 105 + 90 + 90 + 180 - x &= 360 \\ x &= 105^\circ \end{aligned}$$

Cevap: A

11.



Kural:

[AD] ve [CD] açıortay ise [BD]'de açıortaydır.

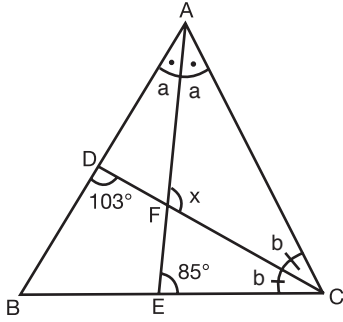
$$\begin{aligned} m(\widehat{ADC}) &= \frac{m(\widehat{ABC})}{2} \Rightarrow 40 = \frac{m(\widehat{ABC})}{2} \\ \Rightarrow m(\widehat{ABC}) &= 80^\circ \end{aligned}$$

$$\begin{aligned} 2x + 80 &= 180^\circ \\ 2x &= 100^\circ \\ x &= 50^\circ \end{aligned}$$

Cevap: C

ÜÇGENDE AÇI

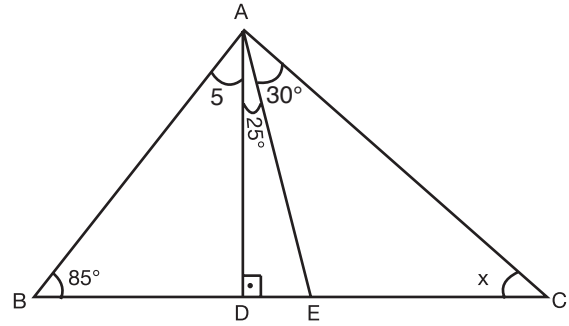
1.



$$\begin{aligned} 2a + b &= 103 \quad (\widehat{ADC}) \\ a + 2b + 85 &= 180 \quad (\widehat{AEC}) \Rightarrow a + 2b = 95 \\ 2a + b &= 103 \\ + \quad a + 2b &= 95 \\ \hline 3a + 3b &= 198 \Rightarrow 3(a + b) = 198 \text{ olur.} \\ a + b &= 66 \end{aligned}$$

$$\begin{aligned} \underbrace{a + b}_{66} + x &= 180 \quad (\widehat{AFC}) \\ 66 + x &= 180 \\ x &= 114^\circ \end{aligned}$$

3.



I. yol:

$$\begin{aligned} m(\widehat{BAE}) &= m(\widehat{EAC}) = 30^\circ \\ x + 55 + 90 &= 180 \\ x &= 35^\circ \end{aligned}$$

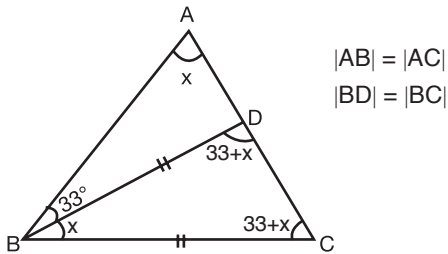
II. yol:

$$\begin{aligned} m(\widehat{DAE}) &= \frac{|m(\widehat{B}) - m(\widehat{C})|}{2} \\ 25 &= \frac{|85 - x|}{2} \\ x &= 35 \end{aligned}$$

Cevap: D

Cevap: B

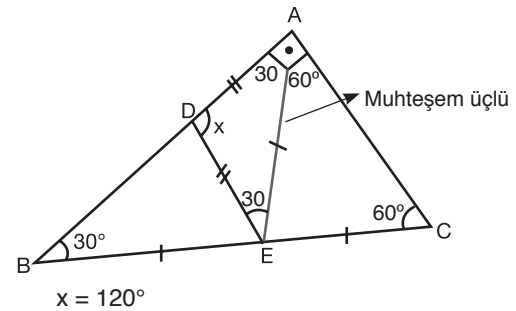
2.



$$\begin{aligned} x + (33 + x) + (33 + x) &= 180^\circ \\ 3x &= 114 \\ x &= 38^\circ \end{aligned}$$

Cevap: A

4.

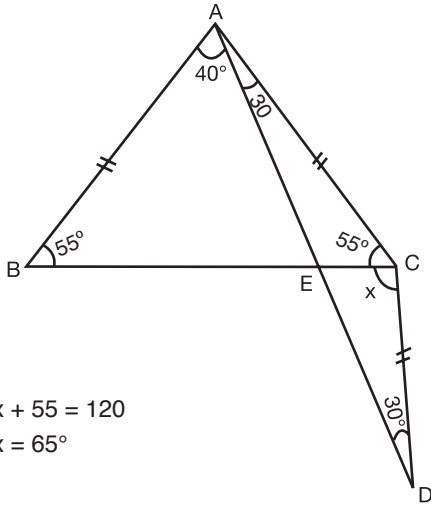


$$x = 120^\circ$$

Cevap: D

ÜÇGENDE AÇI

5.

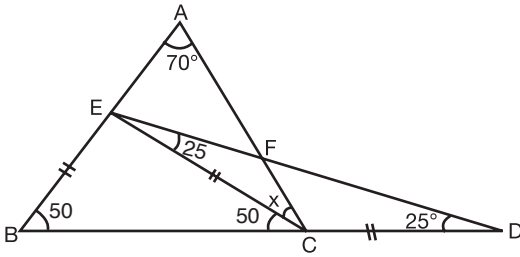


$$x + 55 = 120$$

$$x = 65^\circ$$

Cevap: A

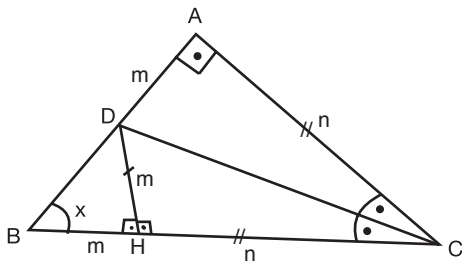
6.



$$70 + 50 + 50 + x = 180 \Rightarrow x = 10^\circ$$

Cevap: B

7.



$$|BC| = |AD| + |AC|$$

$$m + n = m + n$$

Kural

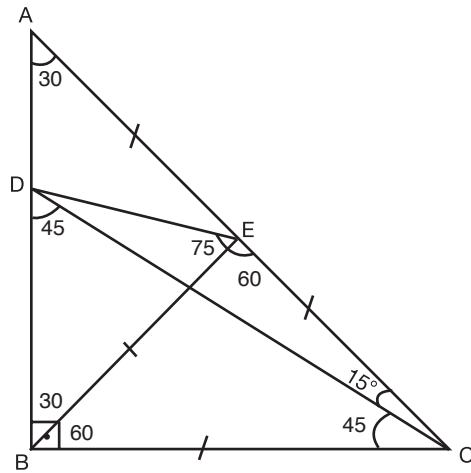
Açıortay üzerinden kollara indirilen dikmelerin uzunlukları ve açıortay kollarının uzunlukları birbirine eşittir.

$$m = |AD| = |DH| \text{ ve } n = |AC| = |HC| \text{ dir.}$$

Dolayısıyla $|BH| = m$ dir. Yani BDH üçgeni ikizkenar dik üçgen-
dir. $x = 45^\circ$

Cevap: D

8.



$\widehat{DBC}$ ikizkenar dik üçgen $|DB| = |BC|$

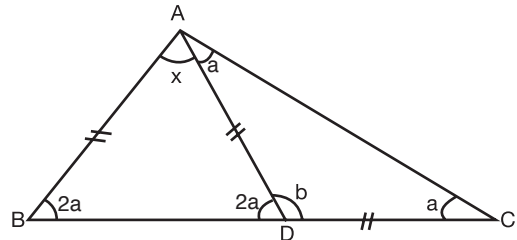
$\widehat{DBE}$ ikizkenar üçgen $|DB| = |BE|$

$$m(\widehat{DBE}) = 30 \Rightarrow m(\widehat{DBE}) = m(\widehat{DEB}) = 75^\circ$$

$$x = 60^\circ + 75^\circ = 135^\circ$$

Cevap: E

9.



$$2a + b = 180$$

$$+ b - 2a = 48$$

$$2b = 228$$

$$b = 114 \text{ ve } a = 33$$

$$4a + x = 180$$

$$4 \cdot 33 + x = 180$$

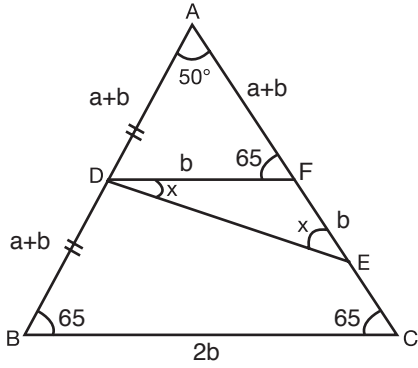
$$x = 180 - 132$$

$$x = 48^\circ$$

Cevap: D

ÜÇGENDE AÇI

10.



$$|AB| = |AC| = 2a + 2b$$

$$|EC| + |BC| = |AE|$$

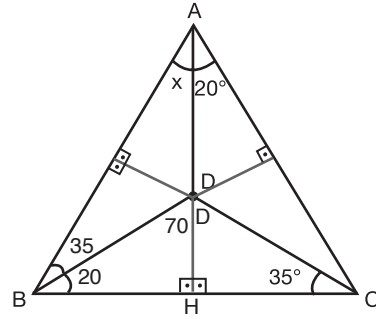
$$a \quad 2b \quad a+2b$$

[DF] orta taban

$$|DF| = \frac{|BC|}{2} = b$$

$$2x = 65 \Rightarrow x = 32,5^\circ$$

12.



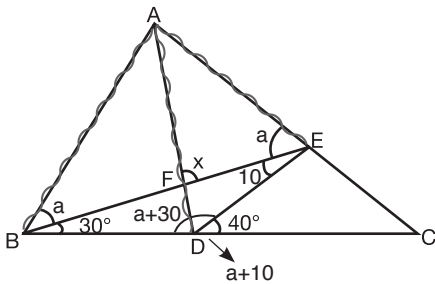
$$x = 35^\circ \quad (\widehat{ABH})$$

Cevap: A

Cevap: B

Tasarı Eğitim Yayınları

11.



$$(a + 30) + (a + 10) + 40 = 180$$

$$2a + 80 = 180$$

$$2a = 100$$

$$a = 50$$

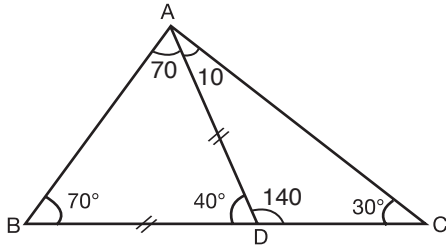
$$x = a + 10 + 10$$

$$x = 70^\circ$$

Cevap: E

AÇI - KENAR BAĞINTILARI

1.



$\widehat{ABD}$ için $|AD| = |BD| > |AB|$

$\widehat{ADC}$ için $|AC| > |AD| > |DC|$

$\widehat{ABC}$ için $|BC| > |AC| > |AB|$

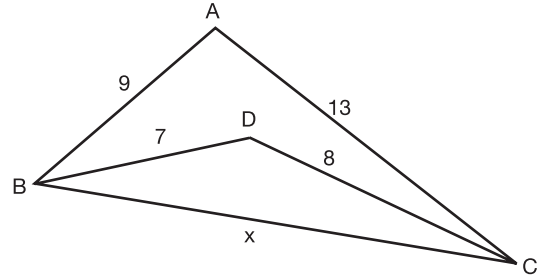
Sonuç olarak;

$|BC| > |AC| > |AD| = |BD| > |AB|$ ve

$|AD| > |DC|$ dir. $|DC| > |AD|$ ifadesi yanlıştır.

Cevap: C

3.



$\widehat{ABC}$ iken $|13 - 9| < x < |13 + 9|$
 $4 < x < 22$

$\widehat{BDC}$ iken $|8 - 7| < x < |18 + 7|$
 $1 < x < 15$

Sonuç olarak

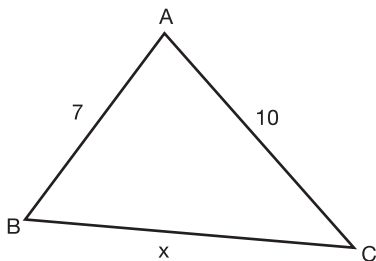
$4 < x < 15$ olmalıdır. (En dar aralık seçilir.)

x'in alabileceği 10 farklı değer vardır.

Cevap: A

Tasarı Eğitim Yayınları

2.



Genel kurala göre $3 < x < 17$

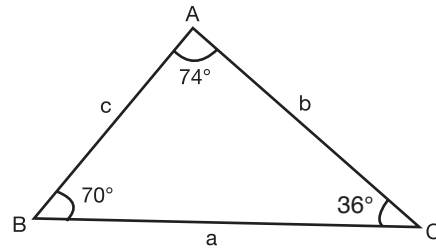
$m(\widehat{B}) < m(\widehat{A})$ için $10 < x$

Sonuç olarak $10 < x < 17$ olmalıdır.

x'in alabileceği 6 farklı değer vardır.

Cevap: B

4.



$c < b < a$ dir.

$|a - b| - |b - c| - |c - a|$

↓

$b < a$

↓

$c < b$

↓

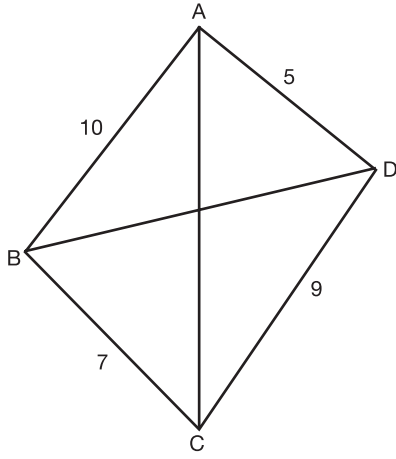
$c < a$

$(a - b) - (b - c) - (a - c) = a - b - b + c - a + c$
 $= 2c - 2b$

Cevap: E

AÇI - KENAR BAĞINTILARI

5.



$\widehat{ABD}$ için $5 < |BD| < 15$

$\widehat{BCD}$ için $2 < |BD| < 16$

Sonuç olarak $5 < |BD| < 15$ olmalıdır.

$\widehat{ABC}$ için $3 < |AC| < 17$

$\widehat{ADC}$ için $4 < |AC| < 14$

Sonuç olarak $4 < |AC| < 14$ olmalıdır.

$$5 < |BD| < 15$$

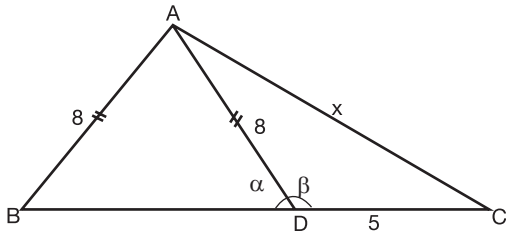
$$+ \quad 4 < |AC| < 14$$

$$9 < |BD| + |AC| < 29$$

$|BD| + |AC|$ 'nin alabileceği en büyük değer 28 dir.

Cevap: C

6.



$\alpha < 90^\circ$ olmalıdır. Dolayısıyla $\beta > 90^\circ$ dir. Yani $\widehat{ADC}$ 'ni geniş açılı üçgendir.

$$89^2 + 5^2 < x^2 \quad \text{ve} \quad 3 < x < 13$$

$$89 < x^2$$

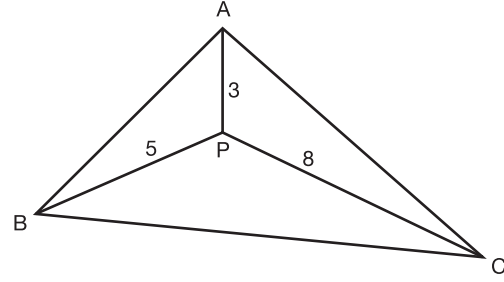
$$\sqrt{89} < x$$

Sonuç olarak $\sqrt{89} < x < 13$ tür.

x 'in alabileceği en küçük değer 10'dur.

Cevap: B

7.



Kural

$$|AP| + |BP| + |CP| < \widehat{C}(ABC) < 2 \cdot (|AP| + |BP| + |CP|)$$

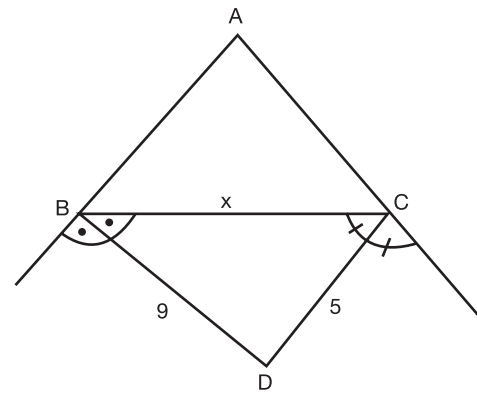
$$3 + 5 + 8 < \widehat{C}(ABC) < 2 \cdot (3 + 5 + 8)$$

$$16 < \widehat{C}(ABC) < 32 \text{ olmalıdır.}$$

$\widehat{C}(ABC) = 33$ olamaz.

Cevap: E

8.



$$m(\widehat{D}) = 90 - \frac{m(\widehat{A})}{2} \text{ 'dir. Yani } \widehat{D} \text{ dar açıdır.}$$

Buna göre

$$x^2 < 9^2 + 5^2 \quad \text{ve} \quad 4 < x < 13$$

$$x^2 < 106$$

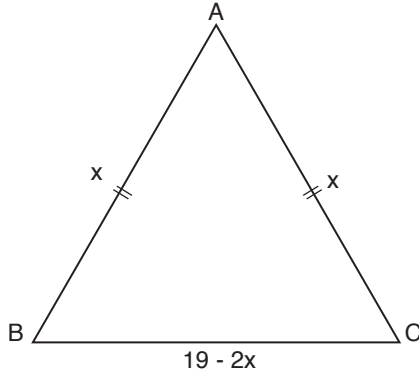
$$x < \sqrt{106}$$

Sonuç olarak $4 < x < \sqrt{106}$ ($\sqrt{106} = 10, \dots$)

x 'in alabileceği tamsayı değerleri 5, 6, 7, 8, 9, 10'dur.

Cevap: B

9.



$$|19 - 2x - x| < x < |19 - 2x + x|$$

$$\text{I. } |19 - 3x| < x < |19 - x|$$

$$\text{I. için } 19 - 3x < x \quad \text{II. için } x < 19 - x$$

$$19 < 4x \quad 2x < 19$$

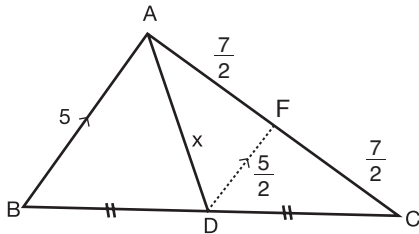
$$\frac{19}{4} < x \quad x < \frac{19}{2}$$

$$\text{Sonuç olarak } \frac{19}{4} < x < \frac{19}{2}$$

$$4. \dots < x < 9.5 \dots$$

x'in alabileceği tamsayı değerleri 5, 6, 7, 8, 9 dur.

10.



[DF] // [AB] çizilir. (Orta taban)

$$|AF| = |FC| = \frac{7}{2}$$

$$|DF| = \frac{|AB|}{2} = \frac{5}{2} \text{ dir.}$$

$$\widehat{ADF} \text{ için } \left| \frac{7}{2} - \frac{5}{2} \right| < x < \left| \frac{7}{2} + \frac{5}{2} \right|$$

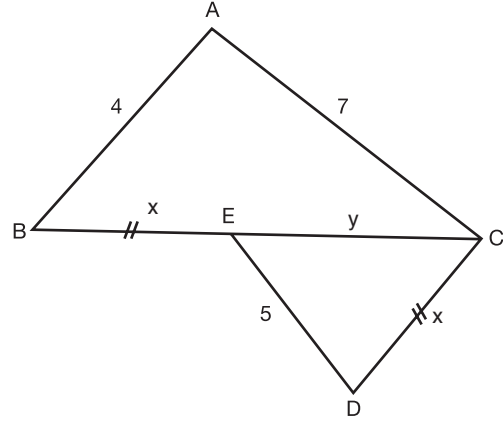
x'in alabileceği tamsayı değerleri 2, 3, 4, 5 tir.

$$2 + 3 + 4 + 5 = 14 \text{ tür.}$$

Cevap: E

Cevap: C

11.



$$\widehat{ABC} \text{ için } |7 - 4| < |BC| < |7 + 4|$$

$$3 < |BC| < 11 \text{ dir.}$$

$$3 < x + y < 11$$

$$\widehat{EDC} \text{ için } |x - y| < 5 < |x + y|$$

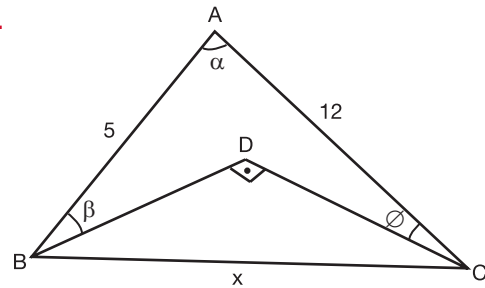
Sonuç olarak $5 < x + y < 11$ olmalıdır.

$$5 < |BC| < 11$$

|BC| 'nin alabileceği 5 farklı değer vardır.

Cevap: A

12.



$\alpha + \beta + \gamma = 90$ olduğundan $\alpha < 90$ dır diyebiliriz.

Yani $\widehat{ABC}$ üçgeni dar açılı üçgendir.

$$x^2 < 5^2 + 12^2 \text{ ve } |12 - 5| < x < |12 + 5|$$

$$x^2 < 169$$

$$7 < x < 17$$

$$x < \sqrt{169}$$

$$x < 13$$

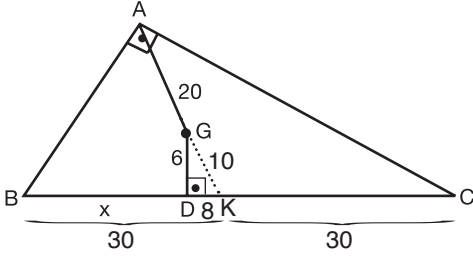
Sonuç olarak

$7 < x < 13$ olmalıdır. x'in alabileceği en büyük tamsayı değeri 12'dir.

Cevap: E

KENARORTAY

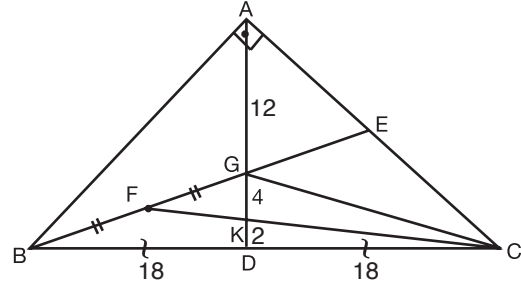
1.



$IAI = 2 IGKI \Rightarrow IGKI = 10$ br
 $\widehat{GDK}$ üçgeninde $IDKI = 8$ br (6, 8, 10 üçgeni)
 $m(\widehat{A}) = 90^\circ \Rightarrow IAKI = IBKI = IKCI = 30$ br (Muhteşem üçlü)
 $x = 22$ br'dir.

Cevap: E

3.



BGC üçgeninde $[GD]$ ve $[FC]$ kenarortay olduğundan K noktası bu üçgenin ağırlık merkezidir.

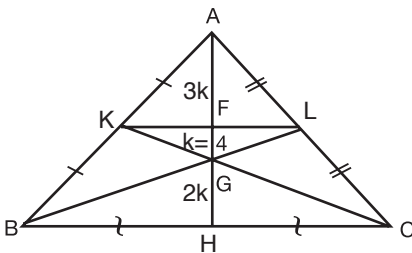
$$2 IKDI = IGKI \Rightarrow IKDI = 2 \text{ br}$$

$$2 IGDI = IAGI \Rightarrow IAGI = 12 \text{ br}$$

$$m(\widehat{A}) = 90^\circ \text{ ve } IADI = 18 \text{ br} \Rightarrow IBCI = 36 \text{ br (Muhteşem üçlü)}$$

Cevap: E

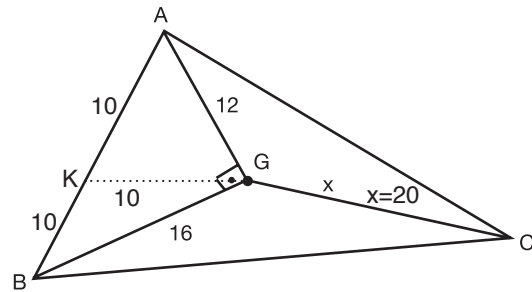
2.



$k = 4$ ise $6k = 24$ 'tür.
 Not: • $[KL]$ orta tabandır. Yani $IAFI = IFHI$
 • G ağırlık merkezidir. Yani $2 IGHI = IAGI$ 'dir.
 Bu iki eşitliği sağlayan oran $(3k, k, 2k)$

Cevap: C

4.



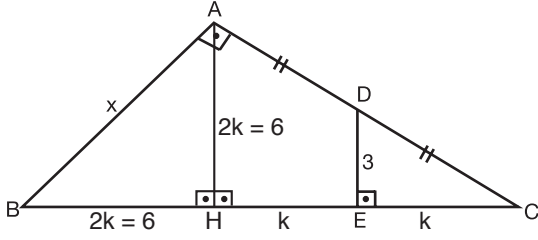
$\widehat{ABD}$ için $IABI = 20$ br (12, 16, 20 üçgeni) $IKGI = 10$ br (Muhteşem üçlü)

$$x = IGCI = 2 IKGI = 20 \text{ br}$$

Cevap: D

KENARORTAY

5.



$$4 IEI = IBCI$$

IECI = k dersek IBCI = 4k olur.

[AH] dikmesini indirirsek IHEI = IECI = k olur.

Dolayısıyla IBHI = 2k olur. ($\widehat{AHC}$)

$\widehat{ABC}$ 'de $m(\widehat{A}) = 90^\circ$ ve IBHI = IHCI olduğundan

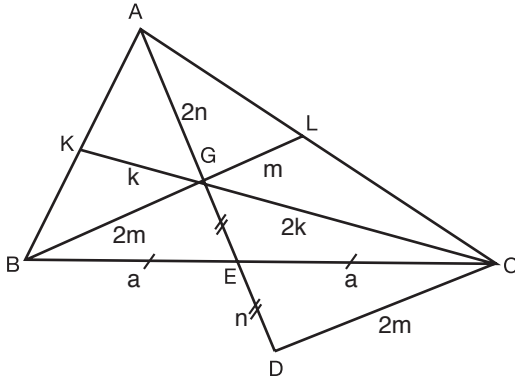
IAHI = 2k olur. (Muhteşem üçlü)

$\widehat{AHC}$ 'de IAHI = 2 IDEI olduğundan IAHI = 6 br

$\widehat{ABH}$ üçgeni ikizkenar dik üçgendir.

$$x = 6\sqrt{2} \text{ br'dir.}$$

6.



$$IAEI + IBLI + IKCI = 36 \text{ br}$$

$$IGEI = IEDI$$

$$3k + 3m + 3n = 36$$

$$3(k + m + n) = 36$$

$$k + m + n = 12 \text{ br}$$

$\widehat{EBG}$ ve $\widehat{ECD}$ üçgenleri eş üçgenleri
(Kenar - Açı - Kenar)

Dolayısıyla IDCİ = 2m br'dir.

$$\checkmark(GDC) = 2k + 2m + 2n$$

$$= 2(k + m + n)$$

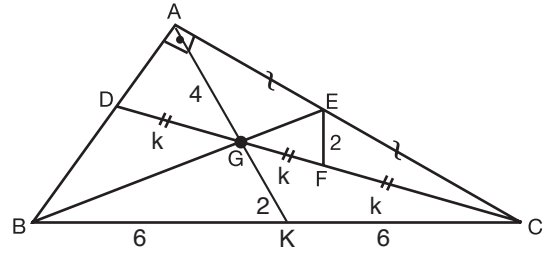
$$= 2 \cdot 12$$

$$= 24 \text{ br'dir.}$$

Cevap: C

Tasarı Eğitim Yayınları

7.



IDGI = IFCI = k dersek

2. IDGI = IGCI olduğundan IGFI = k olur.

AGC üçgeninde [EF] orta taban olduğundan IADI = 4 br'dir.

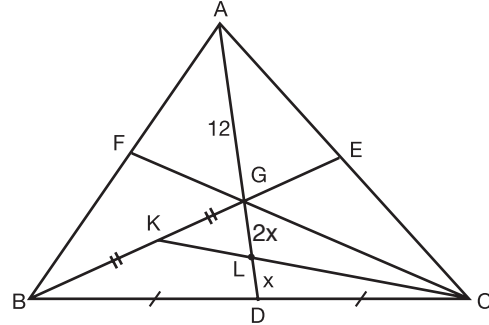
IGKI = 2 br ve IAKI = 6 br olur.

IBCI = 2 IAKI (Muhteşem üçlü)

$$IBCI = 2 \cdot 6 = 12 \text{ br}$$

Cevap: C

8.



BGC üçgeninde [KC] ve [GD] kenarortay olduğundan L noktası bu üçgenin ağırlık noktasıdır.

$$ILDI = x \Rightarrow IGLI = 2x \text{ tir.}$$

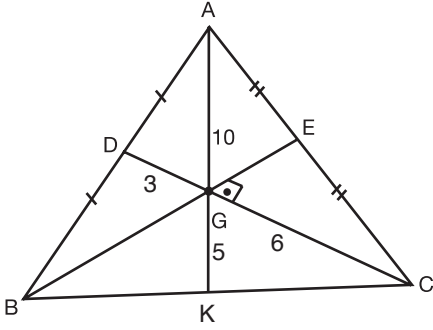
$$ABC \text{ üçgeninde } IAGI = 12, \quad IGD I = 3x = 6 \text{ br}$$

$$\Rightarrow x = 2 \text{ br'dir.}$$

Cevap: B

KENARORTAY

9.



$V_b \perp V_c$ olduğundan $V_a^2 = V_b^2 + V_c^2$ 'dir.

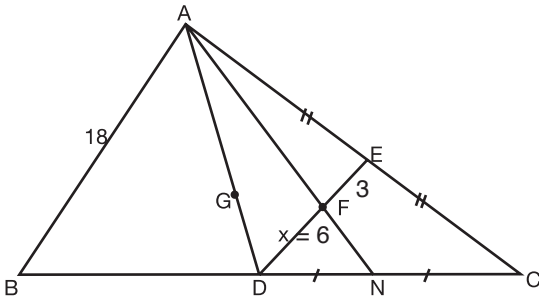
$$V_a = 15 \text{ br} \quad V_c = 9 \text{ br} \quad V_b = ?$$

$$15^2 = 9^2 + V_b^2$$

$$V_b^2 = 144 \Rightarrow V_b = 12 \text{ br'dir.}$$

Cevap: C

10.



ADC üçgeninde F noktası ağırlık merkezidir.

ABC üçgeninde [DE] orta tabandır.

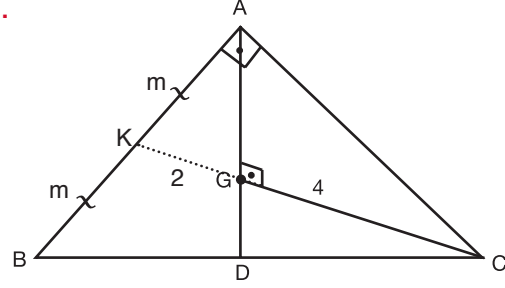
$$|DE| = \frac{|AB|}{2} = 9 \text{ br'dir.}$$

$$|FE| = 3 \text{ br}$$

$$|DF| = X = 6 \text{ br'dir.}$$

Cevap: E

11.



AKC üçgeninde öklid teoremi uygularsak

$$m^2 = 2(2 + 4) = 12$$

$$m^2 = 12$$

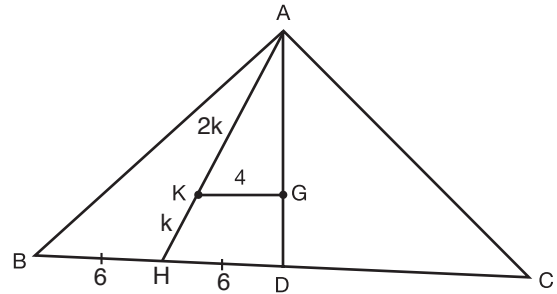
$$m = 2\sqrt{3}$$

$$x = 2m = 2 \cdot 2\sqrt{3}$$

$$x = 4\sqrt{3}$$

Cevap: B

12.



AHD üçgeninde benzerlik uygularsak

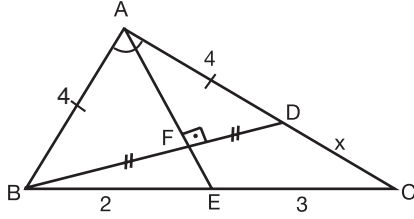
$$\frac{|AK|}{|AH|} = \frac{2k}{3k} = \frac{|KG|}{|HD|} \Rightarrow |HD| = 6 \text{ br}$$

$$IBDI = IDC I = 12 \text{ br} \Rightarrow IBC I = 24 \text{ br'dir.}$$

Cevap: D

AÇIORTAY

1.



ABC üçgeninde

[AF] yükseklik ve kenarortay ise aynı zamanda açıortaydır ve

ABD üçgeni ikizkenar üçgendir.

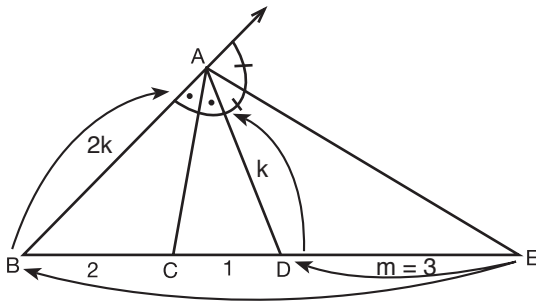
$ABI = IADI = 4$ br

ABC üçgeninde iç açıortay teoremine göre

$$\frac{|AB|}{|BE|} = \frac{|AC|}{|EC|} \text{ dir. } \frac{4}{2} = \frac{4+x}{3} \Rightarrow x = 2 \text{ br}$$

Cevap: D

2.



ABC üçgeninde iç açıortay teoremine göre

$$\frac{|AB|}{|AD|} = \frac{|BC|}{|CD|} = \frac{2}{1} \quad |AB| = 2k \text{ dersek} \\ |AD| = k \text{ olur.}$$

ABD üçgeninde dış açıortay teoremine göre

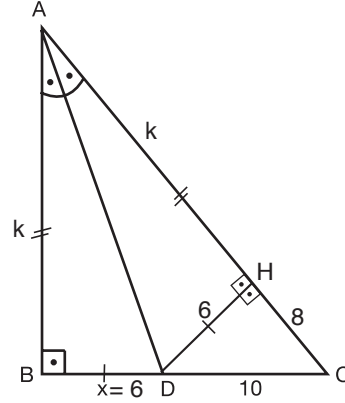
$$\frac{|DE|}{|BE|} = \frac{|AD|}{|AB|} = \frac{1}{2} \quad |DE| = m \text{ dersek} \\ |BE| = 2m \text{ olur.}$$

$$2m = 3 + m \Rightarrow m = 3 \text{ tür.}$$

$$\frac{|BC|}{|BE|} = \frac{2}{6} = \frac{1}{3}$$

Cevap: C

3.



$ABI = k$ dersek $IAEI = k + 8$ olur.

Açıortay üzerindeki aynı noktadan kollara indirilen dikmeler kolları aynı oranda böler ve uzunlukları eşittir. Dolayısıyla

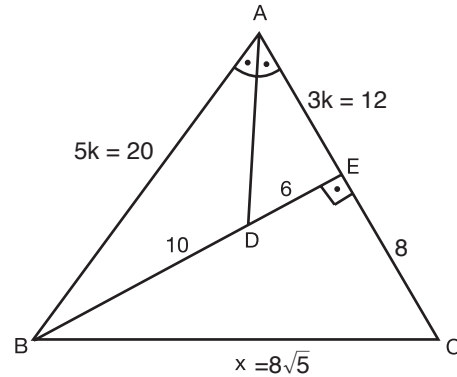
$ABI = IAH = k$ ve $IBDI = IDHI = x$ 'tir.

$IHCI = 8$ ve DHC dik üçgeninde (6, 8, 10)

$IDHI = x = 6$ br'dir.

Cevap: C

4.



ABD üçgenin iç açıortay teoremine göre

$$\frac{|AB|}{|AE|} = \frac{|BD|}{|DE|} = \frac{10}{6} \text{ dir. } |AB| = 5k \text{ dersek} \\ |AE| = 3k \text{ olur.}$$

ABD dik üçgeni (12, 16, 20) üçgenidir.

$ABI = IACI$ olduğundan $IECI = 8$ br'dir.

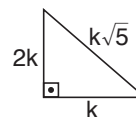
EBC dik üçgeninde pisagor uygulanırsa

$$IEBI^2 + IECI^2 = IBCI^2$$

$$16^2 + 8^2 = x^2$$

$$x = 8\sqrt{5}$$

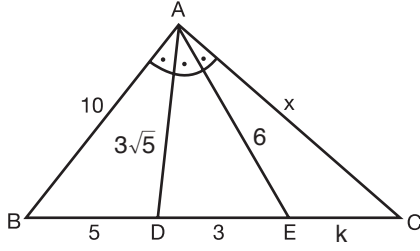
Not:



Cevap: D

AÇIORTAY

5.



ABE üçgeninde iç açıortay teoremine göre

$$IAEI = 6 \text{ br'dir.}$$

ABE üçgeninde iç açıortay uzunluk teoremine göre

$$IADI^2 = IABI \cdot IAEI - IBDI \cdot IDEI$$

$$IADI^2 = 10 \cdot 6 - 5 \cdot 3 = 45$$

$$IADI = 3\sqrt{5}$$

ADC üçgeninde $\frac{|AD|}{|DE|} = \frac{|AC|}{|EC|} = \frac{3\sqrt{5}}{3} = \sqrt{5}$ 'tir.

$|AC| = k\sqrt{5}$ dersek $|EC| = k$ olur.

ADC üçgeninde iç açıortay uzunluk teoremine göre

$$IAEI^2 = IADI \cdot IACI - IDEI \cdot IECI$$

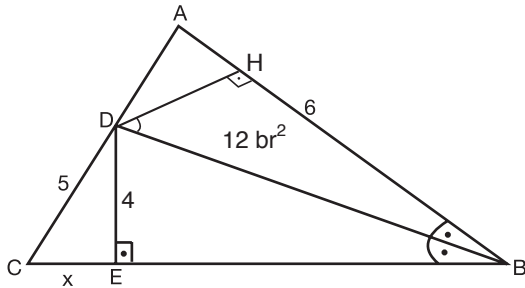
$$6^2 = 3\sqrt{5} \cdot k\sqrt{5} - 3 \cdot k$$

$$36 = 12k$$

$$k = 3 \quad x = k\sqrt{5} = 3\sqrt{5} \text{ 'tir.}$$

Cevap: C

6.



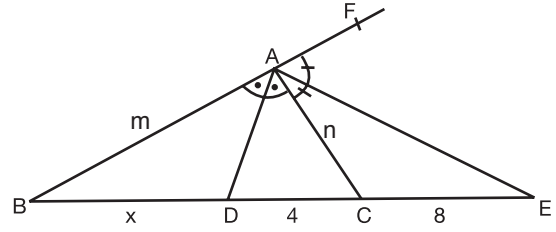
$$A(ABD) = 12 \text{ br}^2 \Rightarrow \frac{|DH| \cdot 6}{2} = 12 \text{ ve } |DH| = 4 \text{ br}$$

$$IDHI = IDEI \text{ olduğundan } IDEI = 4 \text{ br'dir.}$$

$$DEC \text{ üçgeni } (3, 4, 5) \text{ üçgenidir. } x = 3 \text{ br'dir.}$$

Cevap: C

7.



ABC üçgenin iç açıortay teoremine göre

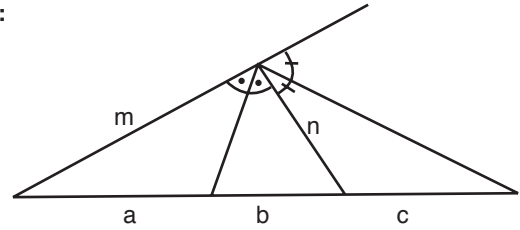
$$\frac{m}{n} = \frac{x}{4}$$

Dış açıortay teoremine göre $\frac{m}{n} = \frac{x+12}{8}$ 'dir.

$$\frac{x}{4} = \frac{x+12}{8} \Rightarrow x = 12 \text{ br'dir.}$$

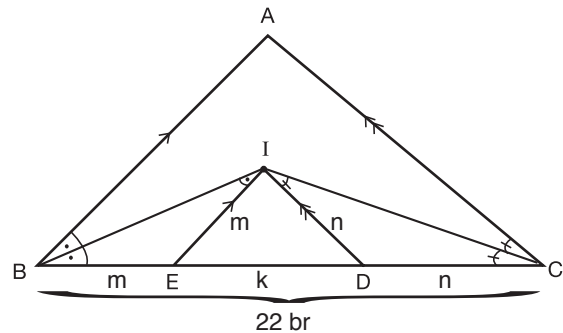
Cevap: D

Not:



$$\frac{a-b}{a+b} = \frac{b}{c} \text{ 'dir. } \left(\frac{x-4}{x+4} = \frac{4}{8}, x = 12 \text{ br} \right)$$

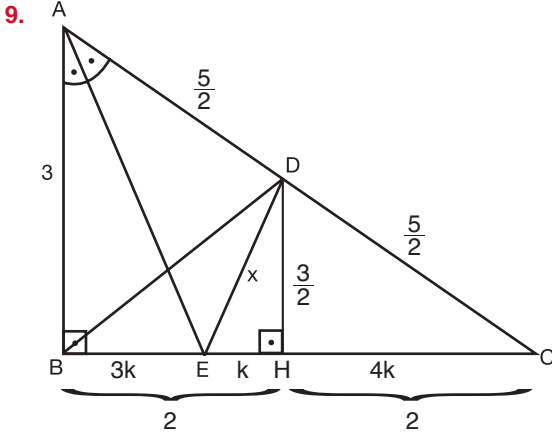
8.



$$m + k + n = 22 \text{ br ve } \angle(IED) = m + k + n \text{ olduğundan } \angle(IED) = 22 \text{ br'dir.}$$

Cevap: A

AÇIORTAY



$$m(\hat{B}) = 90^\circ \text{ ve } |BD| = |AD| = \frac{5}{2} \Rightarrow |DC| = \frac{5}{2}$$

(Muhteşem üçlü)

ABC dik üçgeni (3, 4, 5) üçgenidir.

$$|DH| = \frac{3}{2} \text{ 'dir.}$$

(Orta taban olduğundan) $|BH| = |HC| = 2$ 'dir.

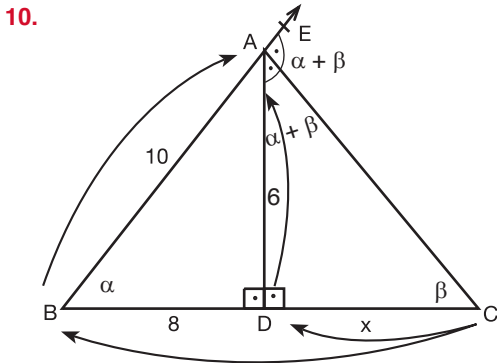
ABC üçgeninde iç açıortay teoremine göre

$$\frac{|AB|}{|AC|} = \frac{|BE|}{|EC|} = \frac{3}{5} \quad |BE| = 3k \text{ dersek} \quad |EC| = 5k \text{ olur.}$$

$$3k + 5k = 4 \Rightarrow k = \frac{1}{2}$$

DHE dik üçgenin pisagor uygulanırsa

$$x^2 = \left(\frac{3}{2}\right)^2 + \left(\frac{1}{2}\right)^2 = \frac{10}{4} \Rightarrow x = \frac{\sqrt{10}}{2} \text{ 'dir.}$$



ABD dik üçgeni (6, 8, 10) üçgenidir. $|AD| = 6$ br

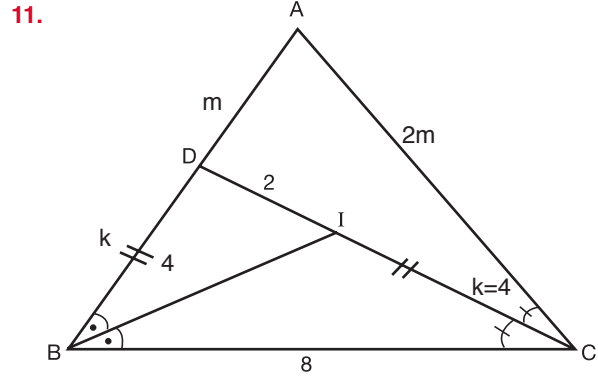
ABC üçgeninde $\hat{EAC}$ dış açısı $m(\hat{B}) + m(\hat{C})$ eşit olduğundan $m(\hat{EAC}) = \alpha + \beta$ 'dir.

ABD üçgeninde dış açıortay teoremine göre

$$\frac{x}{x+8} = \frac{6}{10} = \frac{3}{5} \quad 5x = 3x + 24 \quad 2x = 24 \quad x = 12 \text{ br'dir.}$$

Cevap: B

Cevap: A



BDC üçgeninde iç açıortay teoremine göre

$$\frac{k}{2} = \frac{8}{k} \quad k^2 = 16 \Rightarrow k = 4 \text{ 'tür.}$$

ABC üçgeninde iç açıortay teoremine göre

$$\frac{|BC|}{|BD|} = \frac{|AC|}{|AD|} = \frac{8}{4} = 2 \quad |AC| = 2m \text{ dersek} \quad |AD| = m \text{ olur.}$$

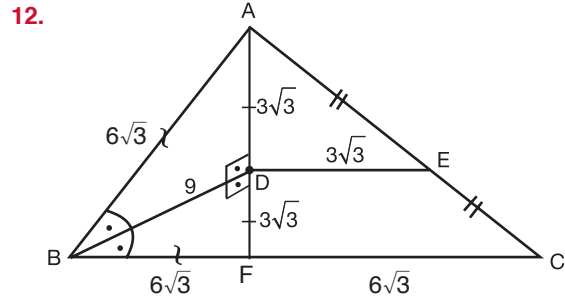
ABC üçgeninde iç açıortay uzunluk teoremine göre

$$|DC|^2 = |AC| \cdot |BC| - |AD| \cdot |BD|$$

$$6^2 = 2m \cdot 8 - m \cdot 4$$

$$36 = 12m \quad x = 2m = 6 \text{ br}$$

Cevap: B



[AF] uzunluğu çizilirse

AFC üçgeninde [DE] orta taban olur.

$$2 \cdot |DE| = |FC| \Rightarrow |FC| = 6\sqrt{3}, \quad |BF| = 6\sqrt{3} \text{ olur.}$$

ABF üçgeninde [BD] hem açıortay hem kenarortay olduğundan aynı zamanda yükseklik olur.

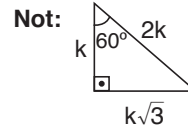
ABF üçgeni ikizkenar üçgen olmuş olur.

$$|AB| = |BF| = 6\sqrt{3} \text{ 'tür.}$$

ABD üçgeninde pisagor uygulanırsa $|AD| = 3\sqrt{3}$ olduğu görülür. ABD üçgeni (30, 60, 90) üçgenidir.

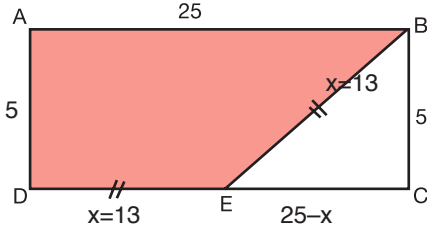
$$m(\hat{ABD}) = 30^\circ \text{ dir.}$$

Cevap: C



DİK ÜÇGEN

1.

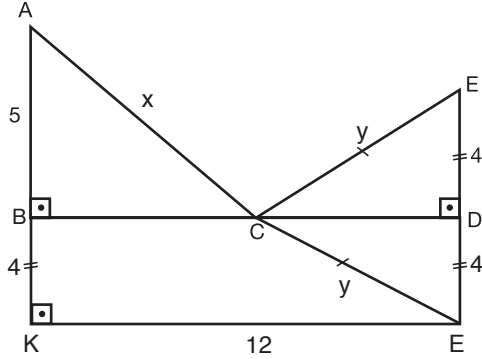


BEC üçgeni (5, 12, 13) üçgenidir.

$x = 13$ 'tür.

$\text{Ç(ADEB)} = 5 + 25 + 13 + 13 = 56$ br

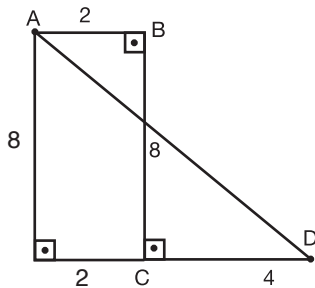
2.



AKE üçgeni (9, 12, 15) üçgenidir.

$AC + CE = x + y = 15$ 'dir.

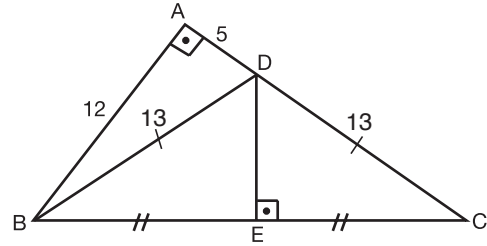
3.



AHD üçgeni (6, 8, 10) üçgenidir.

$ADI = 10$ br'dir.

4.



ABD üçgeni (5, 12, 13) üçgenidir.

DBC üçgeninde [DE] hem yükseklik, hem kenarortay olduğundan DBC üçgeni ikizkenar üçgendir.

$DC = 13$ br

ABC dik üçgeninde pisagor uygularsak

$$12^2 + 18^2 = BC^2$$

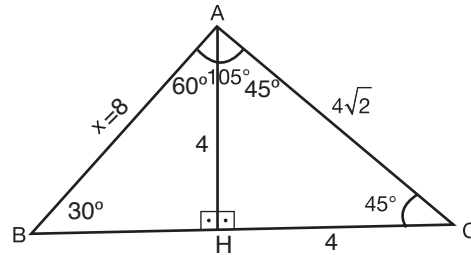
$$468 = BC^2$$

$$BC = 6\sqrt{13} \text{ 'tür.}$$

Cevap: E

Cevap: C

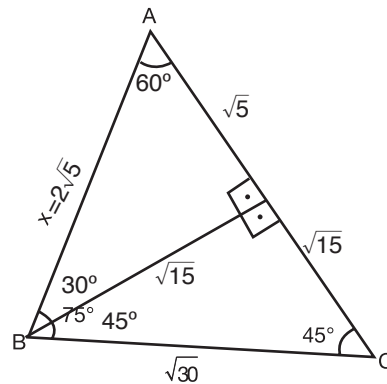
5.



Cevap: C

Cevap: E

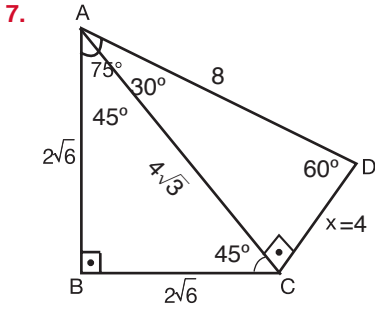
6.



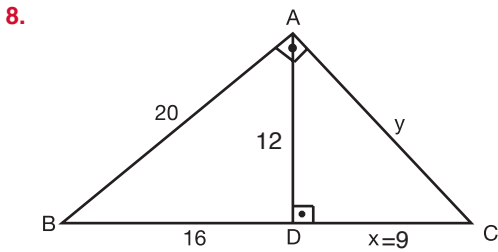
Cevap: B

Cevap: A

DİK ÜÇGEN

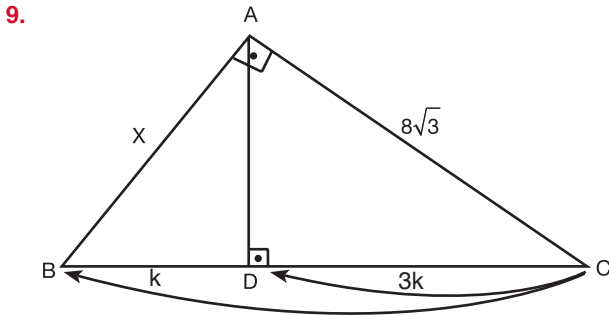


Cevap: D



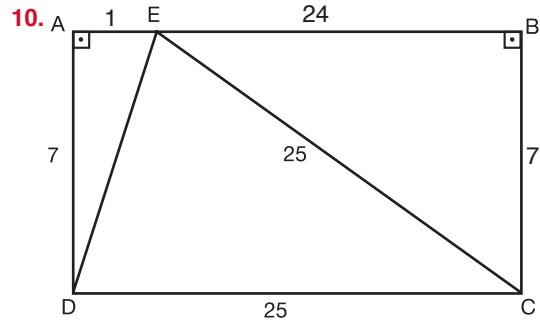
ABD üçgeni (12, 16, 20) üçgenidir. $IAD = 12$ br.
 ABC üçgeninde öklid teoremi gereği
 $12^2 = 16 \cdot x \Rightarrow x = 9$ br
 ADC üçgeni (9, 12, 15) üçgenidir. $IAC = y = 15$ br'dir.
 $x + y = 9 + 15 = 24$ br'dir.

Cevap: D



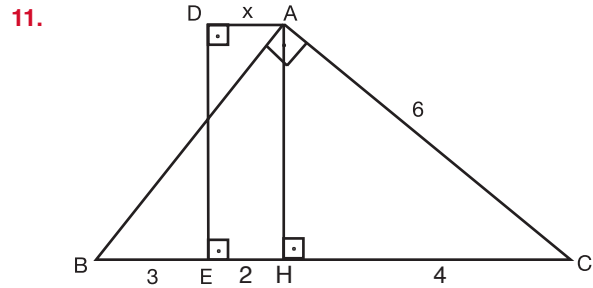
$\widehat{ABC}$ 'de öklid teoremi gereği
 $(8\sqrt{3})^2 = 3k \cdot 4k$
 $192 = 12k^2$
 $k^2 = 16$
 $k = 4$ br'dir.
 $x^2 = k \cdot 4k$
 $x^2 = 4 \cdot 16 = 64$
 $x = 8$ br'dir.

Cevap: C



$\widehat{EBC}$ (7, 24, 25) üçgenidir. $IEBI = 24$ br
 $IAEI = 1$ br'dir.

Cevap: A

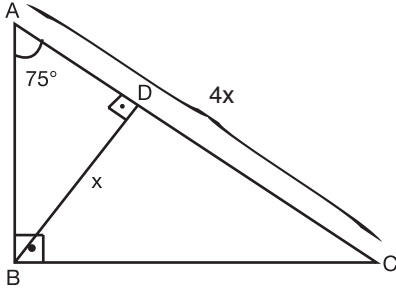


$\widehat{ABC}$ 'de öklid gereği
 $IACI^2 = IHCI \cdot IBCI$
 $6^2 = IHCI \cdot 9 \Rightarrow IHCI = 4$ br
 AHED dikdörtgeninde $IADI = IEHI = x = 2$ br

Cevap: B

DİK ÜÇGEN

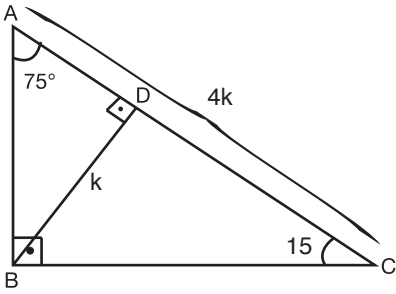
12.



(15, 75, 90) üçgenin dik köşeden hipotenüze indirilen dikme hipotenüsün $\frac{1}{4}$ 'ne eşittir.

$$x + 4x = 25 \Rightarrow x = 5 \text{ br'dir.}$$

Not:



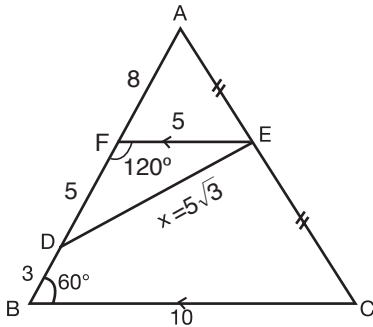
(15, 75, 90) üçgenin dik köşeden hipotenüze indirilen dikme hipotenüsün $\frac{1}{4}$ 'ine eşittir.

$$x + 4x = 25 \Rightarrow x = 5 \text{ br'dir.}$$

Cevap: B

ÖZEL ÜÇGENLER

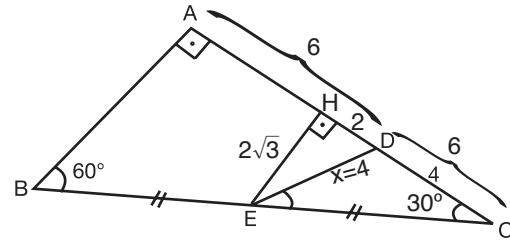
1.



[EF] orta taban IFBI = IFAI = 8 br
ve $|EF| = \frac{|BC|}{2} = \frac{10}{2} = 5$ br dir.
FDE üçgeni (30, 30, 120) üçgendir.
 $x = 5\sqrt{3}$ 'tür.

Cevap: C

3.



[HE] orta taban olduğundan $I_{\text{AH}} = I_{\text{HCl}} = 6$ br
ve $I_{\text{HD}} = 2$ br'dir.

HEC üçgeni (30, 60, 90)'dır.

$$|HCl| = 6 \text{ br} \Rightarrow |HE| = 2\sqrt{3} \text{ br}$$

HED üçgeninde pisagor uygulanırsa

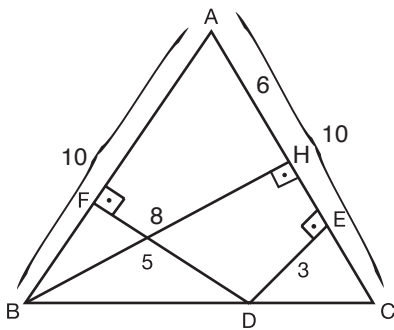
$$|HDI|^2 + |HEI|^2 = x^2$$

$$2^2 + (2\sqrt{3})^2 = x^2$$

$$x = 4 \text{ br}$$

Cevap: B

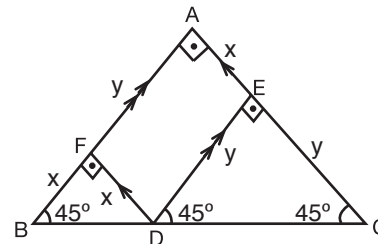
2.



ABC ikizkenar üçgeninde
 $IBHI = IFDI + IEDI = 5 + 3 = 8$ br'dir.
 ABH üçgeni (6, 8, 10) üçgenidir.
 $IAHI = 6$, $IHCI = 4$ br'dir.
 BHC üçgeninde pisagor uygulanırsa
 $IBHI^2 + IHCI^2 = IBCI^2$
 $8^2 + 4^2 = IBCI^2$
 $IBC I = 4\sqrt{5}$ br'dir.

Cevap: E

4.

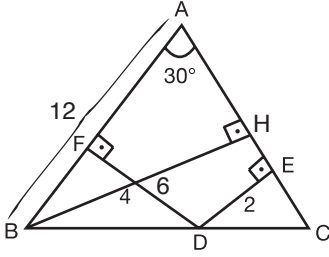


$x + y = 5\sqrt{2}$ br ve ABC ikizkenar dik üçgen olduğundan $IBC_1 = (5\sqrt{2}) \cdot \sqrt{2} = 10$ br'dir.

Cevap: E

ÖZEL ÜÇGENLER

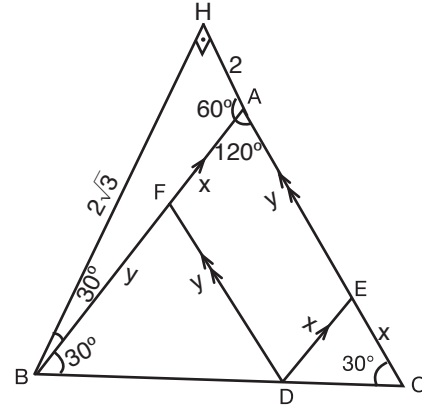
5.



$IBHI = IFDI + IDEI = 4 + 2 = 6$ br
ABH üçgeni $(30, 60, 90)$ üçgenidir.
 $IBHI = 6$ br $\Rightarrow IABI = 12$ br'dir.

Cevap: D

7.



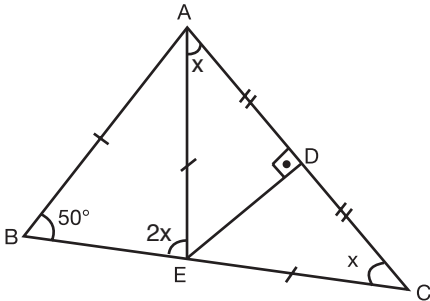
B'nin [AC]'ye en kısa uzaklığı B'den AC'ye indirilen dikmenin uzunluğudur. $IBHI = 2\sqrt{3}$ 'tür.

ABH üçgeni $(30, 60, 90)$ üçgenidir.

$IBHI = 2\sqrt{3} \Rightarrow IABI = x + y = IDEI + IDFI = 4$ br'dir.

Cevap: C

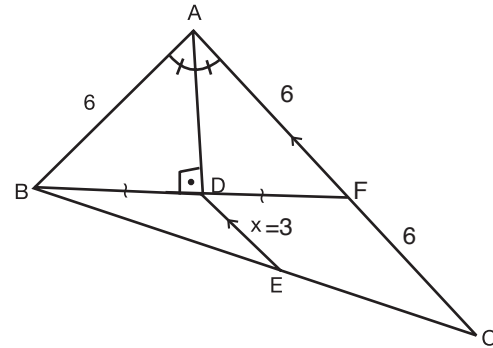
6.



AEC ikizkenar üçgendir $IAEI = IECI$
BAE ikizkenar üçgendir. $m(\hat{B}) = m(\hat{E})$
 $50 = 2x \Rightarrow x = 25^\circ$

Cevap: A

8.



ABF üçgeni ikizkenardır. $IABI = IAFI = 6$ br'dir.

$IFCI = 6$ br olur.

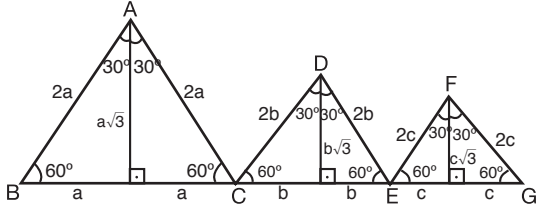
BFC üçgeninde $[DE] = x$ orta tabandır.

$|DE| = \frac{|FC|}{2} = \frac{6}{2} = 3$ br'dir.

Cevap: C

ÖZEL ÜÇGENLER

9.



$$a\sqrt{3} + b\sqrt{3} + c\sqrt{3} = 4\sqrt{3} \Rightarrow \sqrt{3}(a + b + c) = 4\sqrt{3}$$

$$a + b + c = 4 \text{ tür.}$$

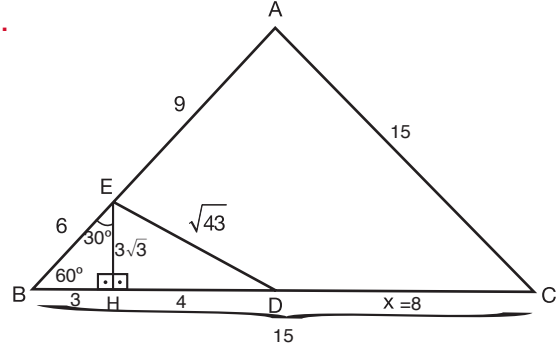
$$\angle(ABC) + \angle(DCE) + \angle(FEG) = 6(a + b + c)$$

$$= 6 \cdot 4$$

$$= 24 \text{ br'dir.}$$

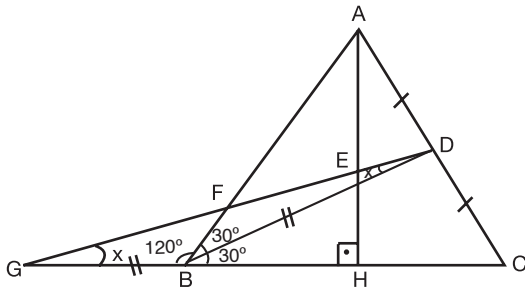
Cevap: D

11.



Cevap: A

10.

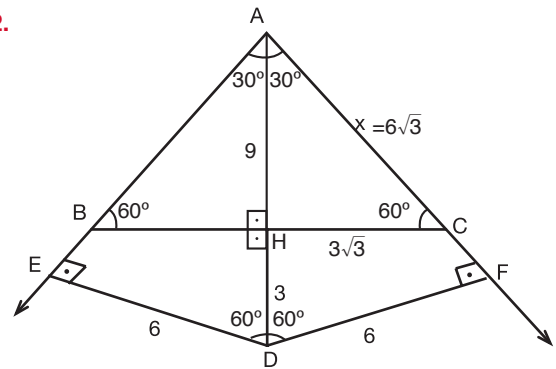


$$IAHI = IBDI = IGBI \text{ dir.}$$

$$GBD \text{ üçgeninde } m(B) = 150^\circ \Rightarrow x = 15^\circ \text{ dir.}$$

Cevap: D

12.



AED (30°, 60° 90°) üçgeninde

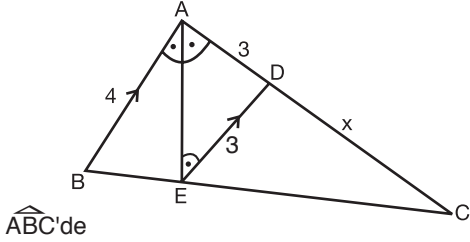
IEDI = 6 br ise IADI = 12 br'dir. IAHI = 9 br'dir. AHC (30, 60, 90) üçgeninde

IAHI = 9 br ise IACI = x = 6√3 br'dir.

Cevap: B

ÜÇGENDE BENZERLİK

1.

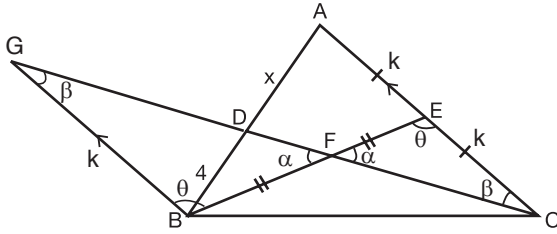


$\widehat{ABC}$ 'de

$$\frac{|DE|}{|AB|} = \frac{|CD|}{|AC|}, \quad \frac{3}{4} = \frac{x}{x+3} \Rightarrow x = 9 \text{ br}$$

Cevap: E

2.



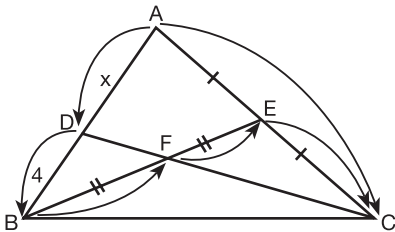
GBD üçgeni FEC üçgenine eşittir. $|GB| = k$ br

GBD ve CAD üçgenleri benzerdir.

$$\frac{|GB|}{|AC|} = \frac{|BD|}{|AD|}, \quad \frac{k}{2k} = \frac{4}{x} \Rightarrow x = 8 \text{ br'dir.}$$

2. yol

Menelaus Teoremi

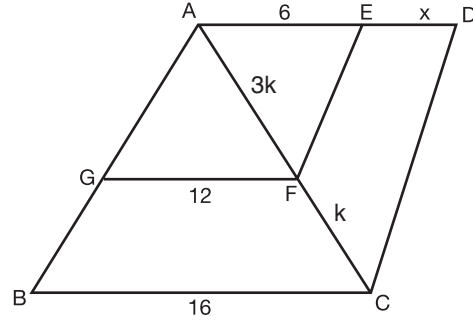


$$\frac{|EC|}{|AC|} \cdot \frac{|AD|}{|AB|} \cdot \frac{|BF|}{|FE|} = 1$$

$$\frac{1}{2} \cdot \frac{x}{4} \cdot \frac{1}{1} = 1 \quad x = 8 \text{ br}$$

Cevap: E

3.



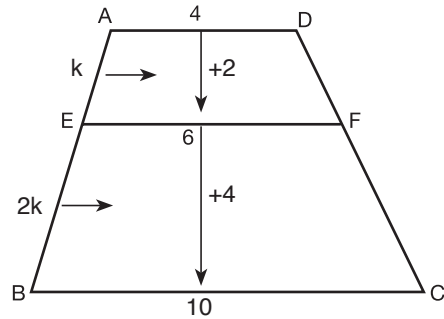
$$\widehat{ABC}'de \quad \frac{|GF|}{|BC|} = \frac{|AF|}{|AC|}, \quad \frac{12}{16} = \frac{3}{4}$$

$|AF| = 3k$ dersek $|AC| = 4k$ olur.

$$\widehat{ACD}'de \quad \frac{|AF|}{|FC|} = \frac{|AE|}{|ED|}, \quad \frac{3k}{k} = \frac{6}{x} \Rightarrow x = 2 \text{ dir.}$$

Cevap: B

4.



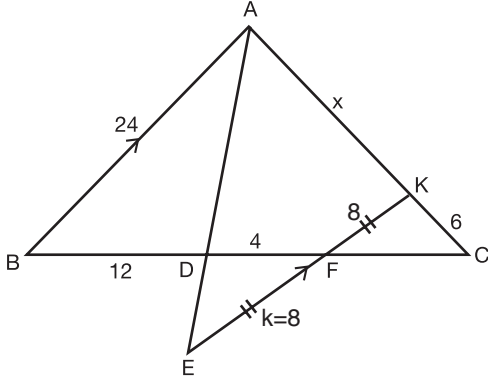
k da 2 br artarsa

$2k$ 'da 4 br artar $|BC| = 10$ br'dir.

Cevap: C

ÖZEL ÜÇGENLER

5.

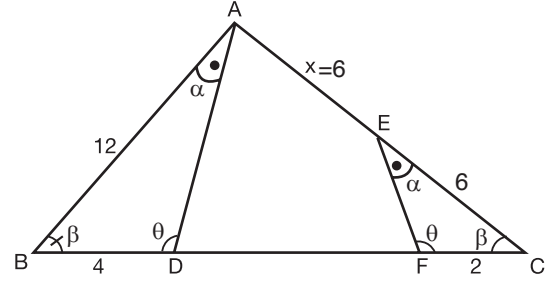


$$\frac{|DF|}{|BD|} = \frac{|EF|}{|AB|}, \frac{4}{12} = \frac{k}{24} \Rightarrow k = 8 \text{ dir.}$$

$$\widehat{ABC} \text{ de } \frac{|KC|}{|AC|} = \frac{|KF|}{|AB|}, \frac{8}{24} = \frac{6}{6+x} \Rightarrow x = 12 \text{ br'dir.}$$

Cevap: A

7.



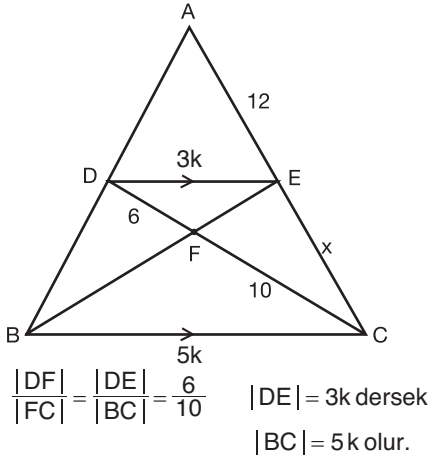
$\widehat{ABD} \approx \widehat{ECF}$ dir.

$$\frac{|BD|}{|FC|} = \frac{|AB|}{|EC|}, \frac{4}{2} = \frac{12}{|EC|} \Rightarrow |EC| = 6 \text{ br}$$

$|AB| = |AC| = 12$ br olduğundan $x = 6$ br'dir.

Cevap: C

6.

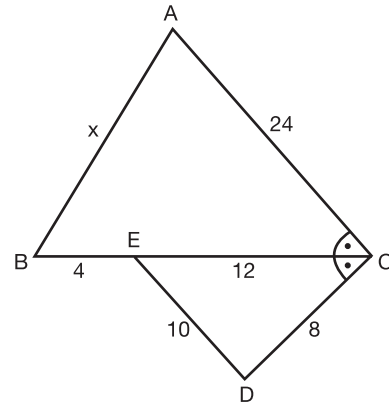


$$\frac{|DF|}{|FC|} = \frac{|DE|}{|BC|} = \frac{6}{10} \quad |DE| = 3k \text{ dersek} \\ |BC| = 5k \text{ olur.}$$

$$\widehat{ABC} \text{ de } \frac{|DE|}{|BC|} = \frac{|AE|}{|AC|}, \frac{3k}{5k} = \frac{12}{12+x} \\ \Rightarrow 36 + 3x = 60 \\ 3x = 24 \\ x = 8$$

Cevap: D

8.



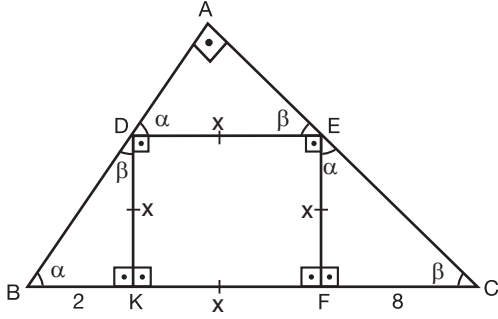
$\widehat{CAB} \approx \widehat{CED}$ (K. A. K)

$$\frac{|CA|}{|CE|} = \frac{|AB|}{|ED|} = \frac{|CB|}{|CD|} \Rightarrow \frac{24}{12} = \frac{x}{10} = \frac{16}{8} \\ x = 20$$

Cevap: E

ÖZEL ÜÇGENLER

9.



$\widehat{KBD} \approx \widehat{FEC}$ 'dir.

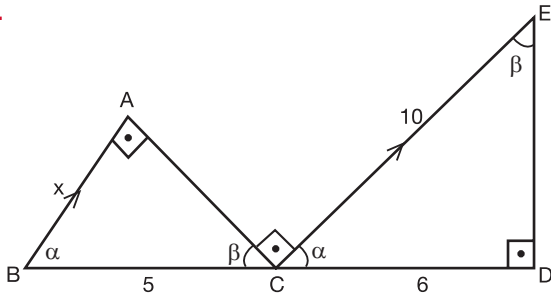
$$\frac{|BK|}{|EF|} = \frac{|DK|}{|FC|}, \frac{2}{x} = \frac{x}{8} \Rightarrow x^2 = 16$$

$$x = 4 \text{ br'dir.}$$

$$A(DEFK) = x^2 = 16 \text{ br}^2$$

Cevap: C

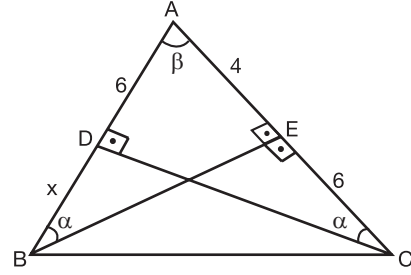
10.



$$\frac{|AB|}{|CD|} = \frac{|BC|}{|CE|}, \frac{x}{6} = \frac{5}{10} \Rightarrow x = 3 \text{ br}$$

Cevap: D

11.



$\widehat{EBA} \approx \widehat{DCA}$ 'dir.

$$\frac{|EA|}{|DA|} = \frac{|BA|}{|CA|}, \frac{\frac{2}{6}}{\frac{4}{6}} = \frac{x+6}{10}$$

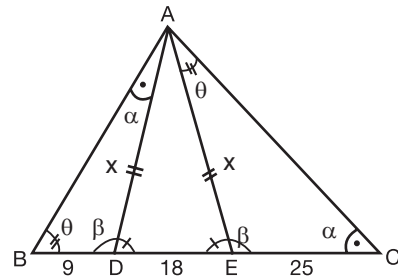
$$20 = 3x + 18$$

$$3x = 2$$

$$x = \frac{2}{3}$$

Cevap: A

12.



$\widehat{ADB} \approx \widehat{CEA}$

$$\frac{|BD|}{|EA|} = \frac{|AD|}{|CE|}, \frac{9}{x} = \frac{x}{25} \Rightarrow x^2 = 9.25$$

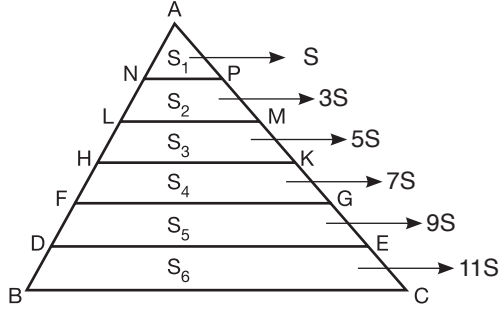
$$x = 15$$

$$\begin{aligned} \text{Ç}(ADE) &= 2x + 18 \\ &= 30 + 18 \\ &= 48 \text{ br} \end{aligned}$$

Cevap: D

ÜÇGENDE ALAN

1.



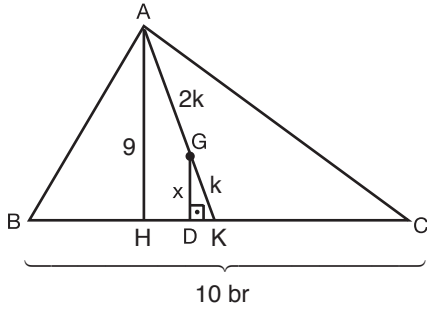
$$S_1 + S_3 + S_5 = S + 5S + 9S = 15S$$

$$S_2 + S_4 + S_6 = 3S + 7S + 11S = 21S$$

$$\frac{S_1 + S_3 + S_5}{S_2 + S_4 + S_6} = \frac{15S}{21S} = \frac{5}{7}$$

Cevap: D

2.

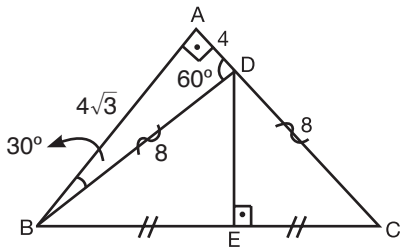


$$\frac{|AH| \cdot |BC|}{2} = 45 \quad \frac{|AH| \cdot 10}{2} = 45 \Rightarrow |AH| = 9 \text{ br}$$

$$\widehat{AHK}'de \quad \frac{|KG|}{|KA|} = \frac{|GD|}{|AH|}, \quad \frac{k}{3k} = \frac{x}{9} \Rightarrow x = 3 \text{ br}$$

Cevap: C

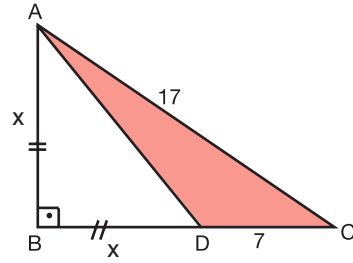
3.



$$A(\widehat{ABC}) = \frac{|AB| \cdot |AC|}{2} = \frac{|AC|}{2} = \frac{4\sqrt{3} \cdot 12}{2} = 24\sqrt{3} \text{ br}^2$$

Cevap: E

4.



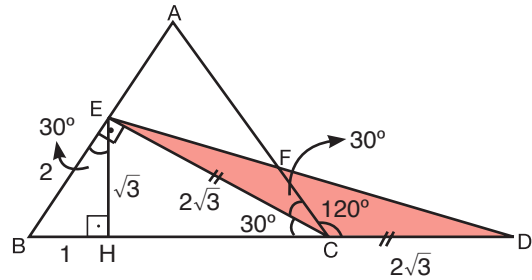
$\widehat{ABC}$ üçgeni (8, 15, 17) üçgenidir.

$x = 8$ 'dir.

$$A(\widehat{ADC}) = \frac{|AB| \cdot |DC|}{2} = \frac{8 \cdot 7}{2} = 28 \text{ br}^2$$

Cevap: D

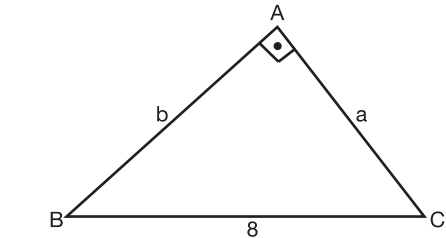
5.



$$A(\widehat{ECD}) = \frac{|EH| \cdot |CD|}{2} = \frac{\sqrt{3} \cdot 2\sqrt{3}}{2} = 3 \text{ br}^2$$

Cevap: C

6.



$$\frac{a}{b} + \frac{b}{a} = 4$$

$$\frac{a}{b} + \frac{b}{a} = 4$$

$$\frac{a^2 + b^2}{a \cdot b} = 4$$

$$a^2 + b^2 = 4 \cdot ab$$

$\widehat{ABC}$ 'de pisagor teoreminden

$$a^2 + b^2 = 8^2$$

$$a^2 + b^2 = 64$$

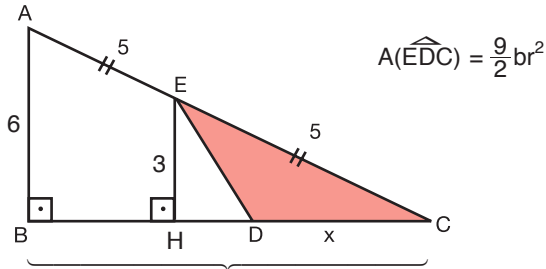
$$64 = 4 \cdot ab \Rightarrow a \cdot b = 16$$

$$A(\widehat{ABC}) = \frac{a \cdot b}{2} = \frac{16}{2} = 8 \text{ br}^2$$

Cevap: C

ÜÇGENDE ALAN

7.

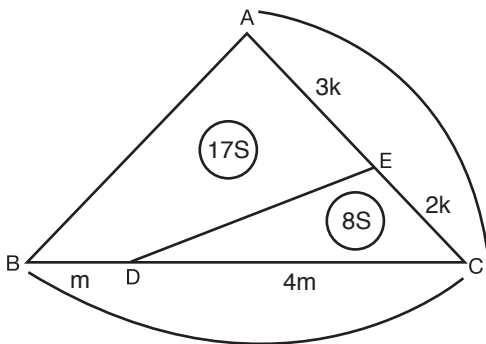


ABC üçgeni (6, 8, 10) üçgendir. IABI = 6 br
[EH] dikmesi orta tabandır. IEHI = 3 br

$$A(\widehat{EDC}) = \frac{|EH| \cdot |DC|}{2} = \frac{3x}{2} = \frac{9}{2} \Rightarrow x = 3$$

Cevap: C

8.



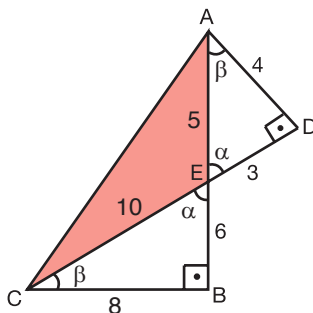
$$\frac{A(\overset{\Delta}{EDC})}{A(ABC)} = \frac{2k \cdot 4m}{5k \cdot 5m} = \frac{8}{25}$$

$$A(\widehat{ABC}) = 50 \text{ br}^2 \Rightarrow A(\widehat{EDC}) = 16 \text{ br}^2 \text{ dir.}$$

$$A(\text{BDEA}) = 34 \text{ br}^2 \text{ dir.}$$

Cevap: D

9.



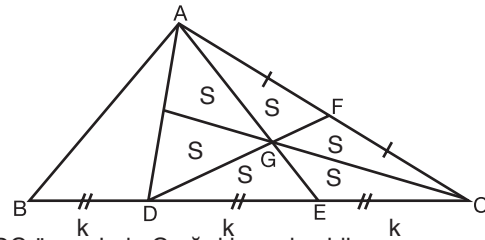
AED üçgeni (3, 4, 5) üçgendir. $IAEI = 5$ br
 $\widehat{DEA} \approx \widehat{BEC}$ 'dir.

BEC üçgeni (6, 8, 10) üçgendir. ICBI=8 br, ICEI=10 br

$$A(\triangle AEC) = \frac{|CE| \cdot |AD|}{2} = \frac{10 \cdot 4}{2} = 20 \text{ br}^2$$

Cevap: A

10.



ADC üçgeninde G ağırlık merkezidir.

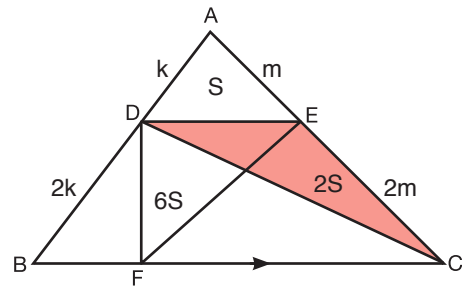
$$2S = 4 \text{ br}^2$$

$$S = 2 \text{ br}^2 \text{ dir. } A(\widehat{ADC}) = 6S = 12 \text{ br}^2$$

$$\frac{A(\text{ADC})}{A(\text{ABC})} = \frac{2k}{3k} \Rightarrow A(\overset{\Delta}{\text{ABC}}) = 18 \text{ br}^2$$

Cevap: B

11.



$$A(\widehat{DEF}) = A(\widehat{DEC})' \text{dir.}$$

ADC üçgeninde $A(ADE) = S$ dersek

$A(\text{DEC}) = 2S$ olur.

ABC üçgeninde $A(ADC) = 3S$ ise

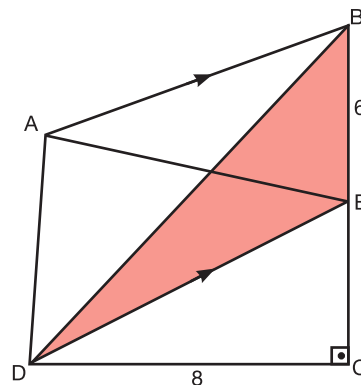
$$A(BDC) = 6S \text{ olur.}$$

$A(ABC) = 9S$ olmuş olur.

$$\frac{A(DEF)}{A(ABC)} = \frac{2S}{9S} = \frac{2}{9}$$

Cevap: A

12.



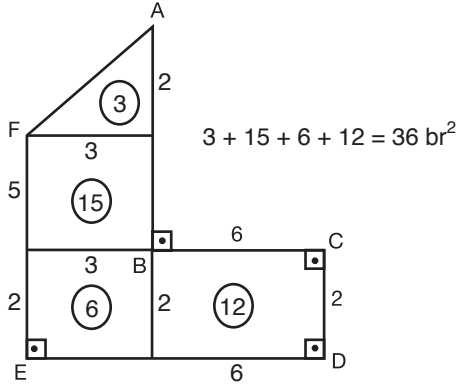
$$A(\widehat{ADE}) = A(\widehat{DBE})' \text{dir.}$$

$$A(\triangle DBE) = \frac{|DC| \cdot |BE|}{2} = \frac{8 \cdot 6}{2} = 24 \text{ br}^2$$

Cevap: C

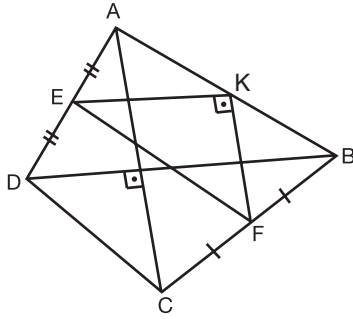
ÇOKGENLER - DÖRTGENLER

1.



Cevap: B

2.



ABD üçgeninde [EK], ABC üçgeninde [KF] orta tabandır.
[EK] ⊥ [KF] dir.

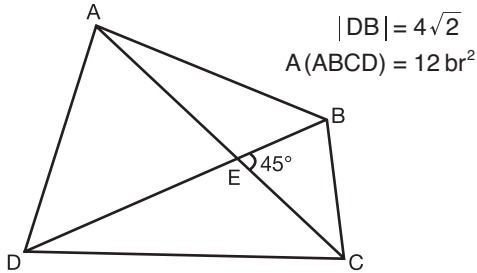
$$|EK| = \frac{|DB|}{2} = \frac{16}{2} = 8 \text{ br}$$

$$|KF| = \frac{|AC|}{2} = \frac{8}{2} = 4 \text{ br}$$

EKF dik üçgeninde pisagor uygulanırsa
 $8^2 + 4^2 = |EF|^2$, $|EF| = 4\sqrt{5} \text{ br}$

Cevap: D

3.

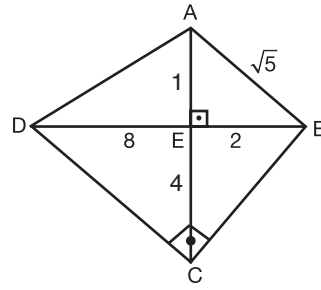


$$A(ABCD) = \frac{1}{2} \cdot |AC| \cdot |DB| \cdot \sin 45$$

$$12 = \frac{1}{2} \cdot |AC| \cdot 4\sqrt{2} \cdot \frac{\sqrt{2}}{2} \Rightarrow |AC| = 6 \text{ br}$$

Cevap: D

4.



ABE üçgeninde pisagor uygulanırsa

$$|AE|^2 + 2^2 = (\sqrt{5})^2$$

$$\Rightarrow |AE| = 1 \text{ br}$$

DBC üçgeninde öklid uygulanırsa

$$|EC|^2 = 8 \cdot 2 \quad |EC| = 4 \text{ br}$$

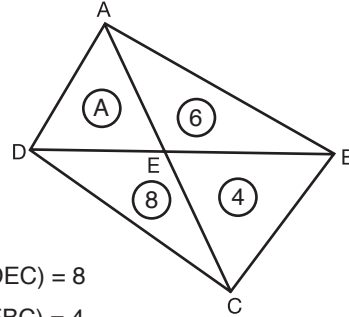
$$A(ABCD) = \frac{1}{2} \cdot |AC| \cdot |DB|$$

$$= \frac{1}{2} \cdot 5 \cdot 10$$

$$= 25 \text{ br}^2$$

Cevap: C

5.



$$A(DEC) = 8$$

$$A(EBC) = 4$$

$$A(AEB) = 6$$

$$A(DAE) = ?$$

$$A(DAE) = A \text{ br}^2 \text{ dersek}$$

$$\frac{A(\triangle ADE)}{A(\triangle AEB)} = \frac{A(\triangle DEC)}{A(\triangle EBC)} \Rightarrow \frac{A}{6} = \frac{8}{4} \Rightarrow A = 12 \text{ br}^2$$

Cevap: D

6. n kenarlı düzgün çokgenin köşegen sayısı

$$\frac{n(n-3)}{2} \text{ dir.}$$

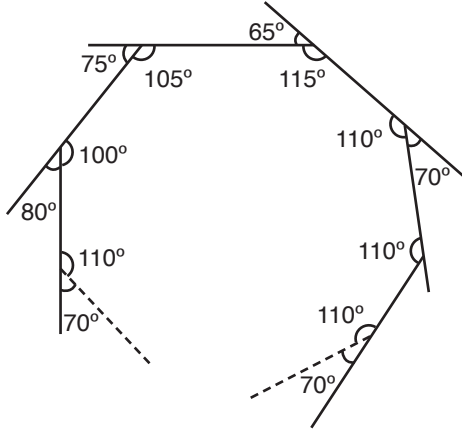
$$\frac{n(n-3)}{2} = 27 \Rightarrow n(n-3) = 54 \Rightarrow n = 9 \text{ dur.}$$

$$\text{Bir dış açısının ölçüsü} = \frac{360}{n} = \frac{360}{9} = 40^\circ$$

Cevap: B

ÇOKGENLER - DÖRTGENLER

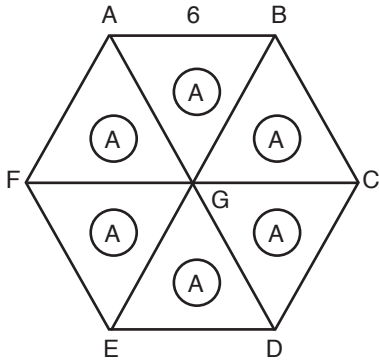
7.



Çokgenin n kenarlı olduğunu düşünürsek
 $65 + 75 + 80 + (n - 3) \cdot 70 = 360 \Rightarrow n = 5$ 'tir.

Cevap: A

8.



$$A = \frac{6^2 \sqrt{3}}{4} = 9\sqrt{3}$$

$$6A = 6 \cdot 9\sqrt{3} = 54\sqrt{3} \text{ br}^2$$

Cevap: E

9.

$$y - x = 12^\circ$$

CEF üçgeninde

$$y + 12^\circ = 3x$$

$$y - 3x = -12^\circ \text{ dir.}$$

$$y - x = 12$$

$$- / y - 3x = -12$$

$$y - x = 12$$

$$\frac{-y + 3x = 12}{2x = 24}$$

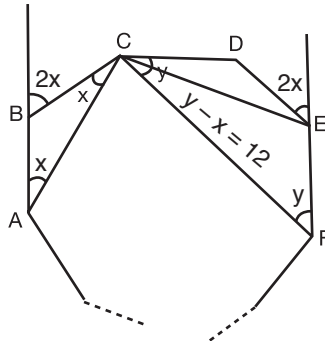
$$x = 12$$

$$y = 24$$

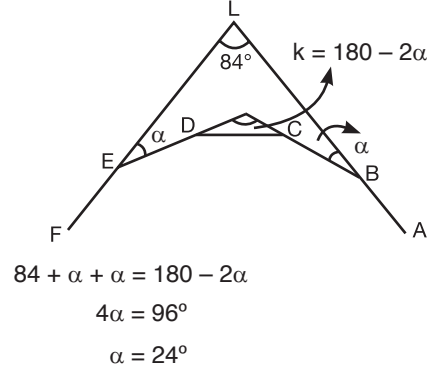
Çokgenin bir iç açısı $108 - 2x$ 'dir.

$$180 - 2x = 180 - 24 = 156^\circ$$

Cevap: E



10.



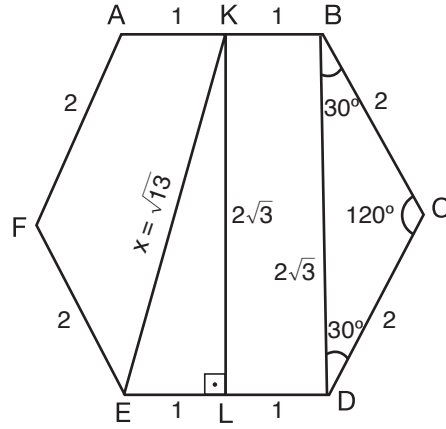
$$84 + \alpha + \alpha = 180 - 2\alpha$$

$$4\alpha = 96^\circ$$

$$\alpha = 24^\circ$$

Cevap: C

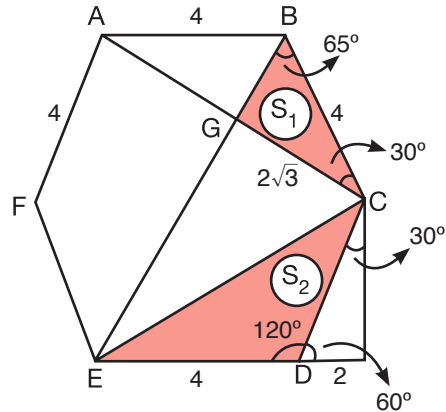
11.



$$\text{Ç}(ABCD) = 12 \text{ br}$$

Cevap: A

12.



[BE] simetri eksenidir ve [DE] $\perp$ [AC]'dir.

$$S_1 = \frac{2\sqrt{3} \cdot 2}{2} = 2\sqrt{3} \text{ br}^2$$

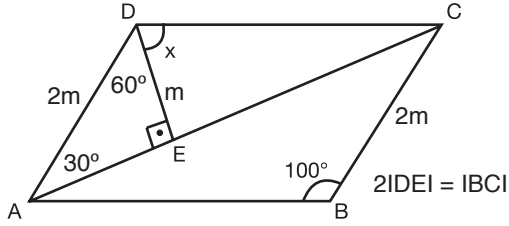
$$S_2 = \frac{[ED] \cdot [CH]}{2} = \frac{4 \cdot 2\sqrt{3}}{2} = 4\sqrt{3} \text{ br}^2$$

$$S_1 + S_2 = 2\sqrt{3} + 4\sqrt{3} = 6\sqrt{3} \text{ br}^2$$

Cevap: B

PARALELKENAR

1.

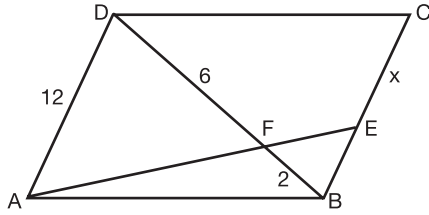


ADE üçgeni (30, 60, 90) üçgendir. ($|AD| = 2|DE|$)

$$m(\widehat{D}) = m(\widehat{B}) \Rightarrow x = 40^\circ$$

Cevap: C

2.



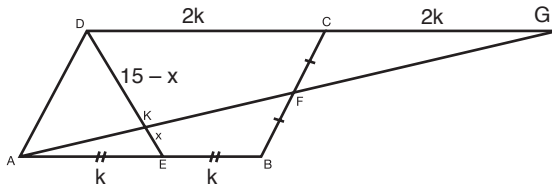
$$(\widehat{ADF}) \approx (\widehat{EBF})$$

$$\frac{|DF|}{|BF|} = \frac{|AD|}{|EB|} \Rightarrow \frac{6}{2} = \frac{12}{|EB|} \Rightarrow |EB| = 4 \text{ br}$$

$$|CB| = 12 \text{ br} \Rightarrow |CE| = x = 8 \text{ br}$$

Cevap: B

3.



$\widehat{AFB}$ ve $\widehat{GFC}$ eş üçgenlerdir.

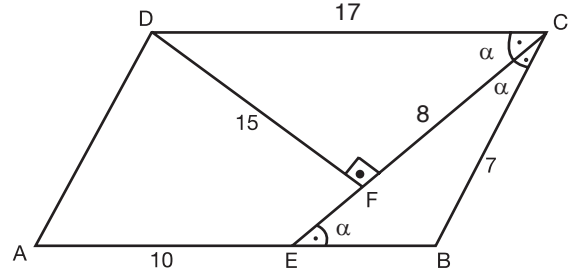
$$|AB| = |GC| = 2k$$

$$\widehat{AKE} \approx \widehat{GKD}'\text{dir.}$$

$$\frac{|AE|}{|DG|} = \frac{|KE|}{|DK|} \Rightarrow \frac{k}{4k} = \frac{x}{15-x} \Rightarrow x = 3 \text{ br}$$

Cevap: C

4.



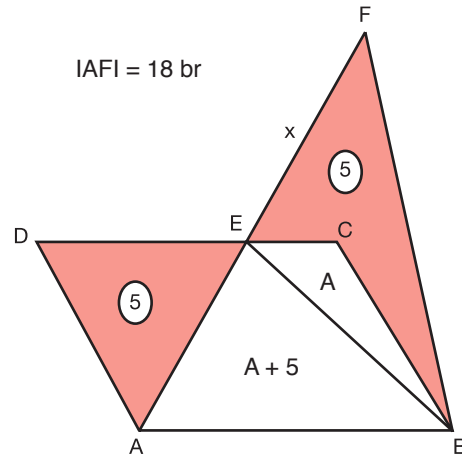
$$m(\widehat{DCE}) = m(\widehat{CEB}) = \alpha \quad \text{EBC ikizkenar ve } |EB| = 7$$

$$|DC| = 17 \text{ br, } \widehat{DFC} \text{ üçgeni } (8, 15, 17) \text{ üçgendir.}$$

$$|CF| = 8 \text{ br}$$

Cevap: B

5.



$$|AE| = 18 \text{ br}$$

$$ABCD \text{ paralelkenarında } A(\widehat{AEB}) = \frac{A(ABCD)}{2} \text{ dir.}$$

$$\widehat{ECB}'\text{nin alanına } A \text{ br}^2 \text{ dersek, } A(\widehat{AEB}) = A + 5 \text{ br}^2 \text{ dir.}$$

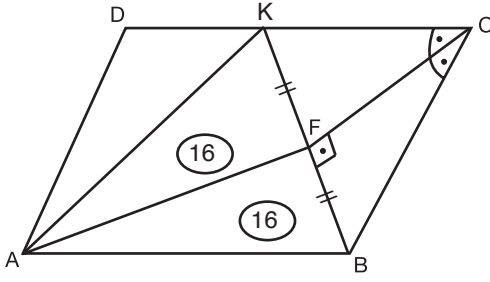
$$AFB \text{ üçgeninde } A(\widehat{AEB}) = A(\widehat{BEF}) = A + 5 \text{ br}^2$$

$$\text{olduğundan } |AE| = |EF| = 9 \text{ br'dir.}$$

Cevap: D

PARALELKENAR

6.



$\widehat{KCB}$ ikizkenar

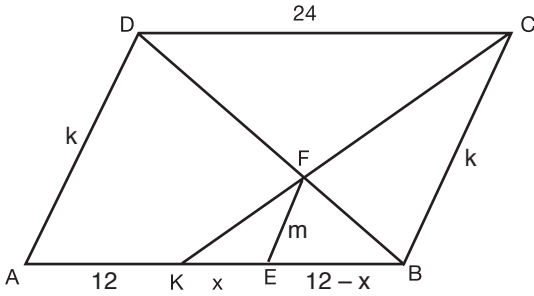
$IKFI = IFBI$ 'dir.

$\widehat{AKB}$ 'de $A(\widehat{AKF}) = A(\widehat{AFB}) = 16 \text{ br}^2$

$A(ABCD) = 2 \cdot A(AKB) = 2 \cdot 32 = 64 \text{ br}^2$

Cevap: E

7.



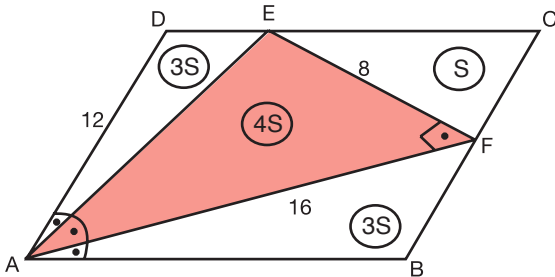
$\widehat{ABD}$ 'de $\frac{|EB|}{|AB|} = \frac{|EF|}{|AD|} \Rightarrow \frac{12-x}{24} = \frac{m}{k}$

$\widehat{KBC}$ 'de $\frac{|EF|}{|BC|} = \frac{|KE|}{|KA|} = \frac{m}{k} = \frac{x}{12}$

$$\Rightarrow \frac{12-x}{24} = \frac{x}{12} \Rightarrow x = 4$$

Cevap: C

8.

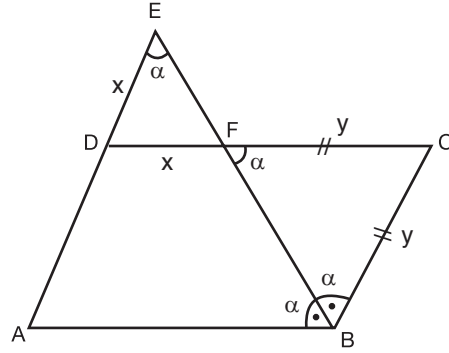


$$4S = \frac{8 \cdot 16}{2} \Rightarrow S = 16 \text{ br}^2$$

$$A(ABCD) = 11 \cdot S = 11 \cdot 16 = 176$$

Cevap: D

9.



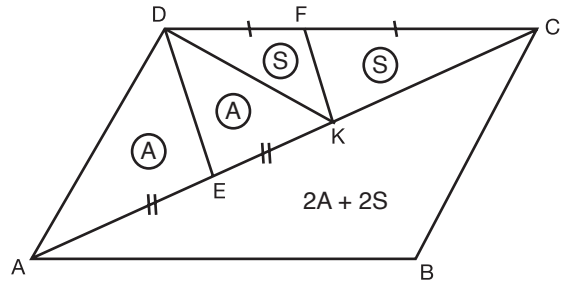
$$IDEI + IFCI + ICBI = 12 \text{ br}$$

$$x + y + y = 12 \text{ br} \Rightarrow x + 2y = 12 \text{ br}$$

$$\text{Ç}(ABCD) = 2(x + 2y) = 24 \text{ br}$$

Cevap: E

10.



$$A(FKC) + A(ADE) = 24$$

$$S + A = 24 \text{ br}^2$$

$$A(FKC) = A(DFK) = S$$

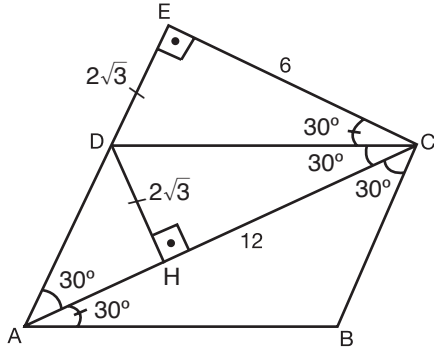
$$A(ADE) = A(DEK) = A$$

$$A(ABCD) = 4(A + S) = 4 \cdot 24 = 96 \text{ br}^2$$

Cevap: E

PARALELKENAR

11.



$$m(\widehat{CAB}) = m(\widehat{DCA}) = m(\widehat{ECD})$$

EAC üçgeninde $\angle AEC = 2\angle ECI$ olduğundan

EAC üçgen $(90, 30, 60)$ üçgenidir.

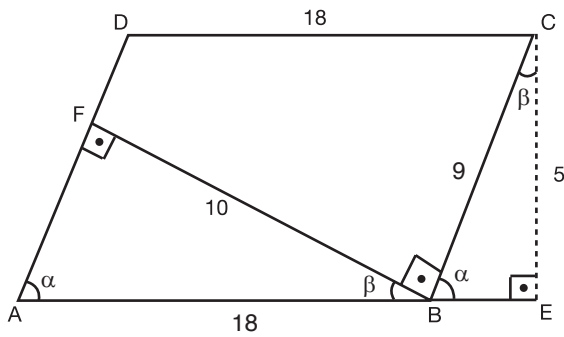
$$IDHI = 2\sqrt{3} \text{ br } A(\triangle ADC) = \frac{2\sqrt{3} \cdot 12}{2} = 12\sqrt{3} \text{ br}^2$$

$$A(ABCD) = 2A(\triangle ADC) = 2 \cdot 12\sqrt{3} = 24\sqrt{3} \text{ br}^2$$

Cevap: B

Tasarı Eğitim Yayınları

12.



$$\triangle AFB \approx \triangle BEC$$

$$\frac{|BF|}{|EC|} = \frac{|AB|}{|BC|}$$

$$\frac{10}{5} = \frac{18}{|BC|}$$

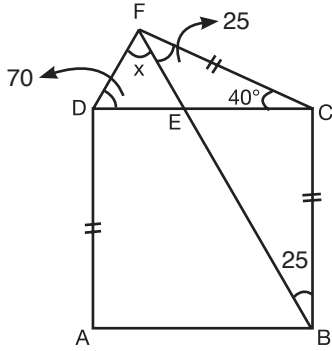
$$|BC| = 9 \text{ br}$$

$$Ç(ABCD) = 2(18 + 9) = 54 \text{ br}$$

Cevap: A

DİKDÖRTGEN - KARE

1.



ABCD kare FCB ikizkenar üçgen

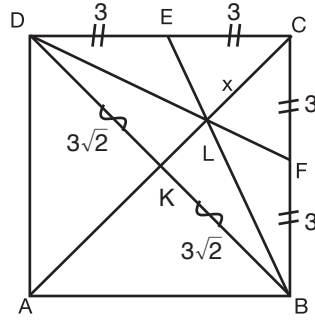
$$m(\widehat{CFB}) = m(\widehat{FBC}) = 25^\circ$$

FDC ikizkenar üçgen

$$m(\widehat{FDC}) = m(\widehat{DFC}) = 70^\circ \Rightarrow x = 45^\circ$$

Cevap: A

3.



$$\text{Ç}(\text{ABCD}) = 24 \text{ br}$$

$$\text{IABI} = \text{IBCI} = \text{ICDI} = \text{IADI} = 6 \text{ br}$$

[BE] ve [DF] kenarortay

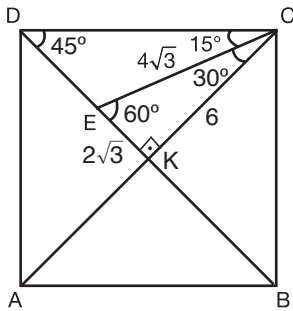
L DCB üçgeninin ağırlık merkezi

$$\text{IDKI} = \text{IKBI} = \text{IKCI} = \text{IAKI} = 3\sqrt{2} \text{ br}$$

$$\text{ILKI} = \sqrt{2} \text{ br} \quad \text{ILCI} = x = 2\sqrt{2} \text{ br}$$

Cevap: B

2.



[AC] köşegen

EKC (30, 60, 90) üçgen

$$\text{IKCI} = 6 \text{ br}$$

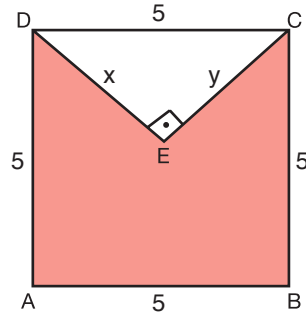
DKC ikizkenar dik üçgen

$$\text{IDCI} = 6\sqrt{2} \text{ br}$$

$$\text{A}(\text{ABCD}) = (6\sqrt{2})^2 = 72 \text{ br}^2$$

Cevap: E

4.



$$\text{A}(\text{ABCD}) = 25 \text{ br}^2$$

$$\text{Ç}(\text{DEC}) = 12 \text{ br}$$

$$\text{IABI} = \text{IBCI} = \text{ICDI} = \text{IADI} = 5 \text{ br}$$

$$\text{IDEI} = x \quad \text{IECI} = y \text{ için}$$

$$x + y + 5 = 12 \Rightarrow x + y = 7$$

$$x^2 + y^2 = 5^2 \Rightarrow x^2 + y^2 = 25$$

$$(x + y)^2 = \frac{x^2 + y^2 + 2xy}{25}$$

$$49 = 25 + 2xy \Rightarrow 2xy = 24 \Rightarrow xy = 12$$

$$\text{A}(\triangle \text{DEC}) = \frac{xy}{2} = \frac{12}{2} = 6 \text{ br}^2$$

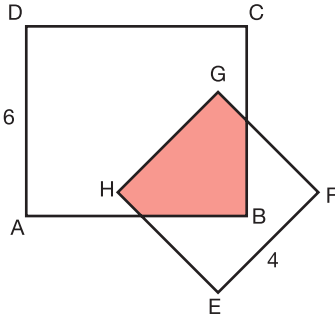
$$\text{Taralı alan} = 5^2 - 6 = 19 \text{ br}^2$$

Not: DEC üçgeninin (3, 4, 5) olduğunu kolaylıkla söyleyebiliriz.

Cevap: B

DİKDÖRTGEN - KARE

5.

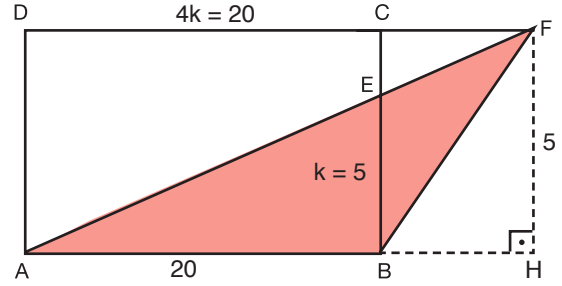


$$A(ABCD) + A(EFGH) - \text{Taralı Alan} = \text{Tüm Şeklin Alanı}$$

$$6^2 + 4^2 - 14 = 38 \text{ br}^2$$

Cevap: E

8.



$$4ICBI = IDC I \quad \text{Ç}(ABCD) = 50 \text{ br}$$

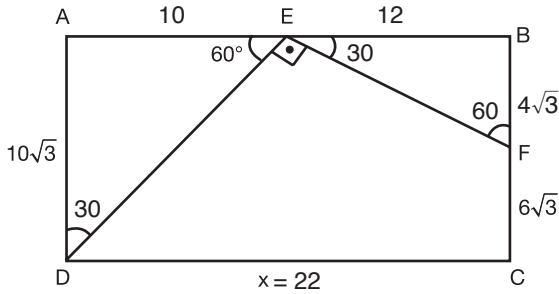
$$ICBI = k \text{ dersek } IDC I = 4k \text{ olur.}$$

$$\text{Ç}(ABCD) = 10k = 50 \Rightarrow k = 5 \text{ br}$$

$$A(AFB) = \frac{|AB| \cdot |FH|}{2} = \frac{20 \cdot 5}{2} = 50 \text{ br}^2$$

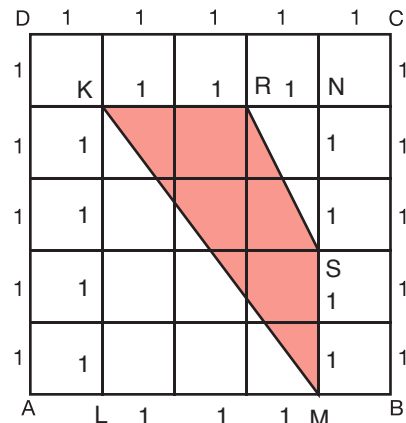
Cevap: E

6.



Cevap: A

9.



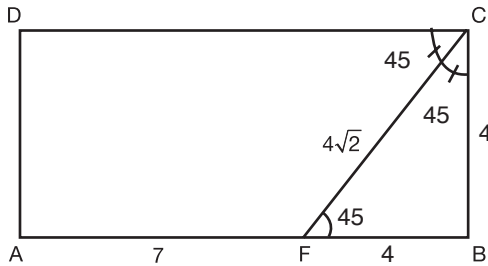
$$\text{Taralı Alan} = A(KLMN) - A(KLM) - A(NRS)$$

$$= 3 \cdot 4 - \frac{3 \cdot 4}{2} - \frac{1 \cdot 2}{2}$$

$$= 5 \text{ br}^2$$

Cevap: C

7.

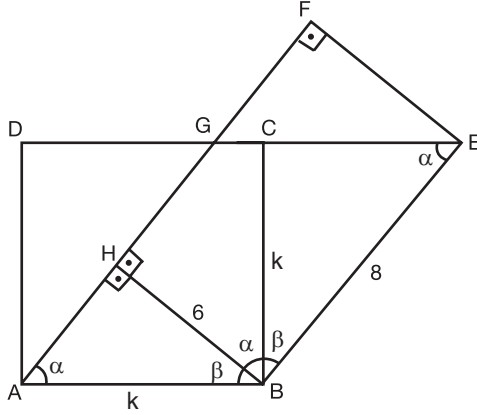


$$A(ABCD) = 4 \cdot 11 = 44 \text{ br}^2$$

Cevap: C

DİKDÖRTGEN - KARE

10.



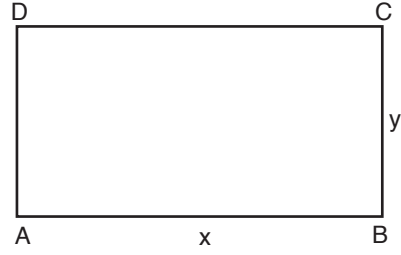
$\widehat{AHB} \approx \widehat{ECB}$ 'dir.

$$\frac{|AB|}{|BE|} = \frac{|HB|}{|BC|}, \frac{k}{8} = \frac{6}{k}$$

$$\Rightarrow k^2 = 48 \quad A(ABCD) = k^2 = 48 \text{ br}^2$$

Cevap: D

12.



$$2(x + y) = 26 \Rightarrow x + y = 13$$

$$(x + 2)(y - 1) = x \cdot y$$

$$\begin{aligned} xy - x + 2y - 2 &= xy \\ -x + 2y &= 2 \end{aligned}$$

$$\Rightarrow \begin{aligned} x + y &= 13 \\ x + 2y &= 2 \end{aligned}$$

$$\begin{aligned} &+ \quad -x + 2y = 2 \\ &\hline &3y = 15 \end{aligned}$$

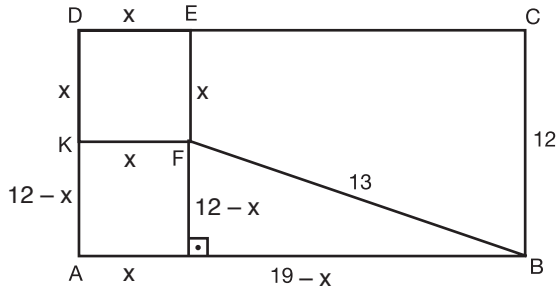
$$y = 5 \text{ ve } x = 8$$

$$A(ABCD) = xy = 8 \cdot 5 = 40 \text{ br}^2$$

Cevap: E

Tasarı Eğitim Yayınları

11.



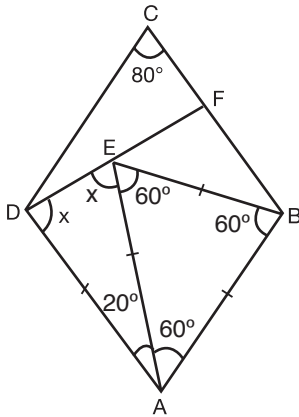
FHB üçgen (5, 12, 13) üçgenidir. ($x = 7$ 'dir.)

$$A(DEFK) = x^2 = 7^2 = 49 \text{ br}^2 \text{dir.}$$

Cevap: D

EŞKENARDÖRTGEN - DELTOİD - YAMUK

1.

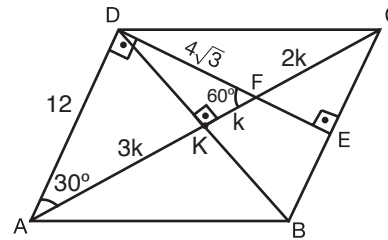


$$2x + 20 = 180^\circ$$

$$x = 80^\circ$$

Cevap: E

3.



$$2|FC| = |AF|$$

$$|FCI| = 2k, \quad |AFI| = 4k$$

$$|AK| = |KC| = 3k$$

[AD] // [BC] olduğundan

$$m(\widehat{DEC}) = m(\widehat{EDA}) = 90^\circ$$

ADF üçgeninde öklid uygulanırsa

$$(4\sqrt{3})^2 = k \cdot (4k) \Rightarrow k = 2\sqrt{3} \quad |AF| = 4k = 8\sqrt{3}$$

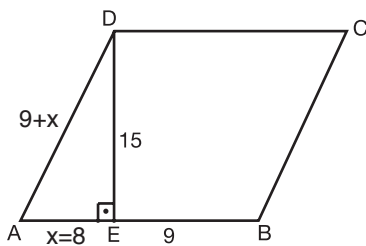
ADF (30, 60, 90) üçgenidir. $|AD| = 12$ br'dir.

$$C_3(ABCD) = 48 \text{ br}$$

Cevap: E

Tasarı Eğitim Yayınları

2.

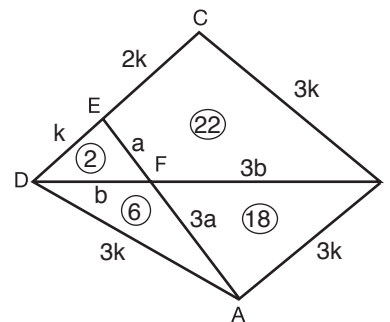


ADE üçgeni (8, 15, 17) üçgenidir. ($x = 8$)

$$C(ABC) = 17 \cdot 4 = 68 \text{ br}$$

Cevap: A

4.



$$2|DE| = |EC|$$

$\downarrow$
 k

$\downarrow$
 $2k$

$$A(\text{DEF}) = 2 br^2$$

$$\widehat{DEF} \approx \widehat{BAF}$$

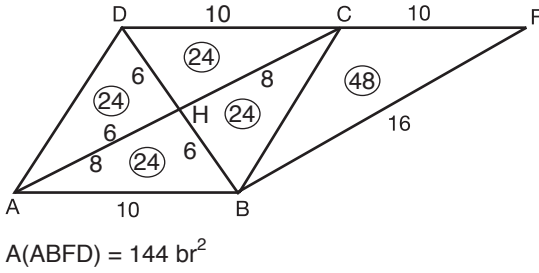
$$\frac{|DF|}{FB} = \frac{|ED|}{AB} = \frac{|EF|}{FA} = \frac{1}{3}$$

$$A(ABCD) = 48 \text{ br}^2$$

Cevap: D

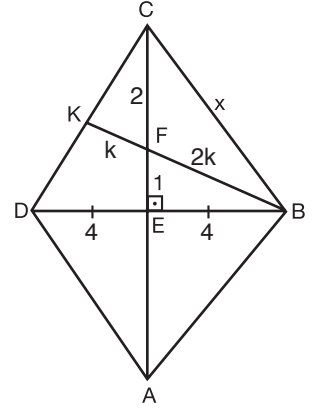
EŞKENARDÖRTGEN - DELTOİD - YAMUK

5.



Cevap: B

7.



$$IDBI = 8 \text{ br}$$

$$2IKFI = IFBI$$

$$k \quad 2k$$

F noktası BCD üçgeninin ağırlık merkezidir.

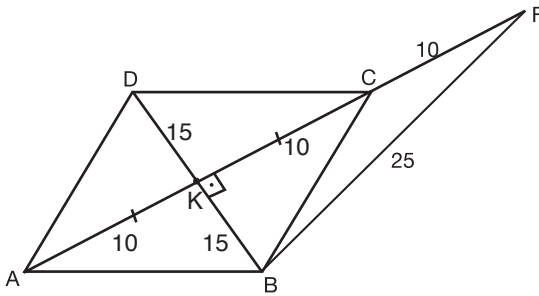
$$IFEI = 1 \text{ br} \Rightarrow ICFI = 2 \text{ br}$$

BCE üçgeni (3, 4, 5) üçgenidir.

$$x = 5 \text{ br}$$

Cevap: B

6.



KBF (15, 20, 25) üçgeni

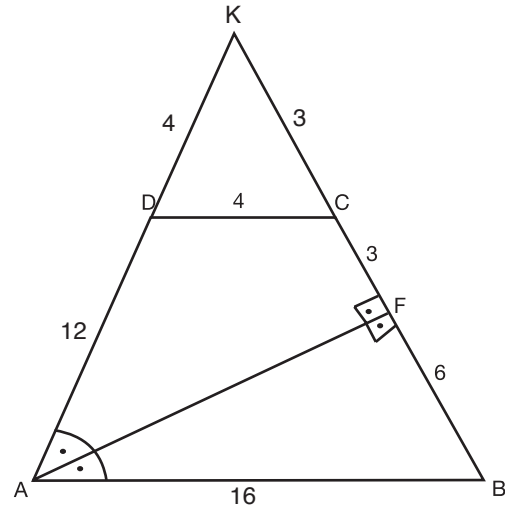
$$A(ABCD) = \frac{|AC| \cdot |BD|}{2}$$

$$= \frac{20 \cdot 30}{2}$$

$$= 300 \text{ br}^2$$

Cevap: E

8.



$$IABI = IAKI$$

$$IKFI = IFBI = 6 \text{ br}$$

$$\widehat{KDC} \approx \widehat{KAB}$$

$$\frac{|KC|}{|KB|} = \frac{|CD|}{|AB|} = \frac{|KD|}{|AK|} = \frac{1}{4}$$

$$\Rightarrow |AB| = 16 \text{ br}$$

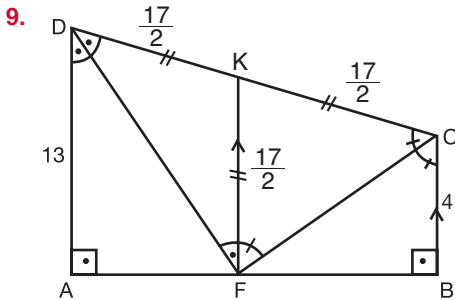
$$|KD| = 4 \text{ br}$$

$$|AD| = 12 \text{ br'dir.}$$

$$\widehat{C(ABCD)} = 41 \text{ br}$$

Cevap: B

EŞKENARDÖRTGEN - DELTOİD - YAMUK



[AD] // [KF] // [BC]

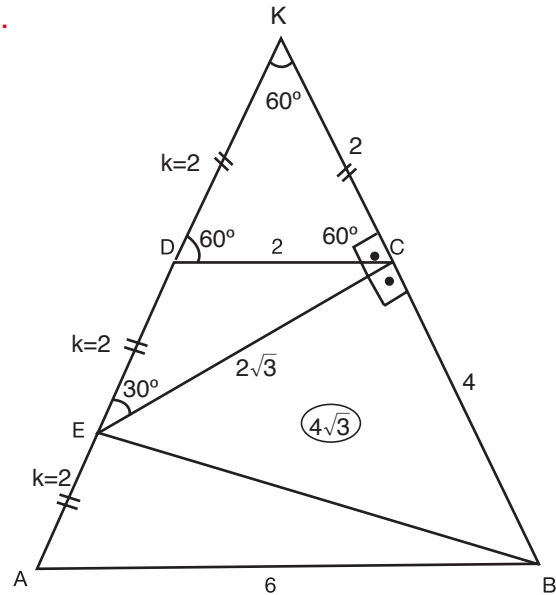
[KF] orta taban

$$|KF| = \frac{4+13}{2} = \frac{17}{2}$$

IDCI = 17 br

Cevap: A

11.



ABCD ikizkenar yamuk

$$\widehat{KDC} \approx \widehat{KAB} \quad \frac{|KD|}{|KA|} = \frac{|KC|}{|KB|} = \frac{|DC|}{|AB|} = \frac{2}{6} = \frac{1}{3}$$

KEC üçgeninde $IKDI = IDEI = IDCI = 2$ br (Muhteşem üçlü)

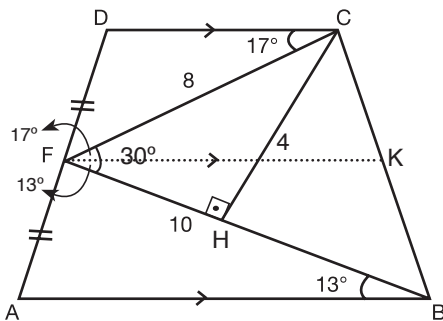
KEC üçgeni (30, 60, 90) üçgenidir ve $|EC| = 2\sqrt{3}$

$$A(\widehat{CEB}) = \frac{2\sqrt{3} \cdot 4}{2} = 4\sqrt{3} \text{ br}^2$$

$$A(ABC) = 2 \cdot A(\widehat{CEB}) = 8\sqrt{3} \text{ br}^2$$

Cevap: B

10.



$$A(ABCD) = 2.A(BCF)$$

[DC] // [FK] // [AB]

$$m(\text{BFC}) = 30^\circ$$

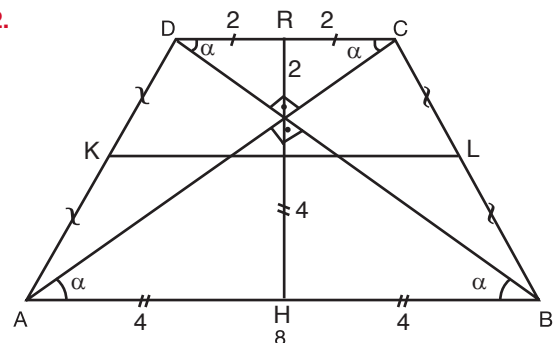
CHF üçgeni (30, 60, 90) üçgeni ve ICHL = 4 br

$$A(\text{BCF}) = \frac{4.10}{10} = 20$$

$$A(ABCD) = 40 \text{ br}^2$$

Cevap: C

12.



$$[KL] \text{ orta taban } [KL] = \frac{4+8}{2} = 6 \text{ br}$$

$$A(ABCD) = IKLI \cdot IRHI$$

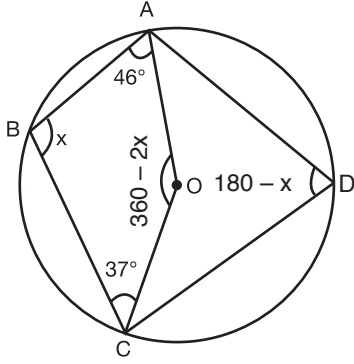
$$= 6.6$$

$$= 36 \text{ br}^2$$

Cevap: C

ÇEMBERDE AÇILAR

1.



ABCD kirişler dörtgeni

$$m(\widehat{B}) + m(\widehat{D}) = 180^\circ \text{ dir.}$$

$$m(\widehat{D}) = 180 - x$$

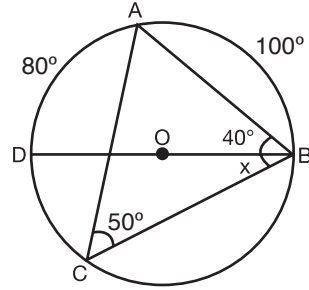
$$m(\widehat{AOC}) = 360 - 2x \text{ tir.}$$

ABCD dörtgeninin iç açıları toplamı 360° derecedir.

$$x + 46 + 37 + 360 - 2x = 360^\circ$$

$$x = 83$$

3.



$$m(\widehat{ABD}) = 40^\circ \Rightarrow m(\widehat{AD}) = 80^\circ$$

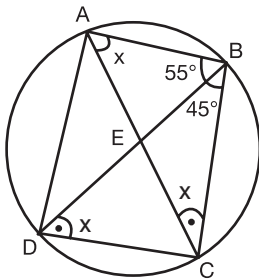
$$m(\widehat{AB}) = 100^\circ \Rightarrow m(\widehat{ACB}) = 50^\circ$$

$$|AC| = |AB| \Rightarrow 40 + x = 50^\circ$$

$$x = 10^\circ$$

Cevap: B

2.



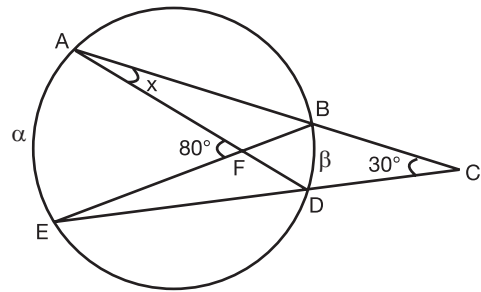
$\widehat{CAB}$ açısı ve $\widehat{BDC}$ açısı aynı $\widehat{BC}$ yayını gördüklerinden eşittir.

ABC üçgeninde

$$x + 55^\circ + 45^\circ + x = 180$$

$$x = 40^\circ \text{ dir.}$$

4.



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

$$m(\widehat{BD}) = \beta \text{ dersek}$$

$$\frac{+}{2} = 80$$

$$\frac{-}{2} = 30$$

$$\alpha + \beta = 160$$

$$+ \quad \alpha - \beta = 60$$

$$2\alpha = 220 \Rightarrow \alpha = 110, \beta = 50$$

$$\beta = 50^\circ \Rightarrow x = 25^\circ$$

Cevap: D

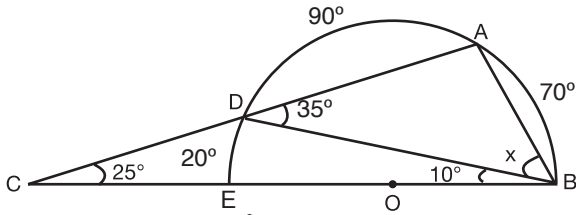
Tasarı Eğitim Yayınları

Cevap: E

Cevap: C

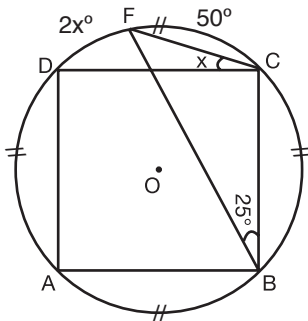
ÇEMBERDE AÇILAR

5.


$$\begin{aligned} \text{CDB üçgeninde } m(\widehat{ADB}) &= 35^\circ \\ m(\widehat{DBE}) &= 10^\circ \Rightarrow m(\widehat{DE}) = 20^\circ \\ m(\widehat{ADB}) &= 35^\circ \Rightarrow m(\widehat{AB}) = 70^\circ \\ m(\widehat{AD}) &= 90^\circ \Rightarrow x = 45^\circ \end{aligned}$$

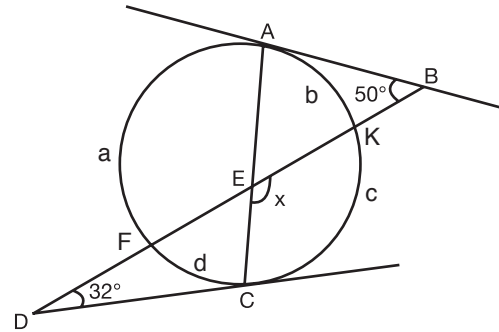
Cevap: C

6.


$$\begin{aligned} m(\widehat{FBC}) &= 25 \Rightarrow m(\widehat{FC}) = 50^\circ \\ m(\widehat{FCD}) &= x \Rightarrow m(\widehat{FD}) = 2x^\circ \\ m(\widehat{CD}) &= 2x + 50 \\ m(\widehat{AB}) &= m(\widehat{BC}) = m(\widehat{CD}) = m(\widehat{AD}) = 2x + 50 \\ m(\widehat{AB}) + m(\widehat{BC}) + m(\widehat{CD}) + m(\widehat{AD}) &= 360 \\ 4(2x + 50) &= 360 \\ 2x + 50 &= 90 \\ 2x &= 40 \\ x &= 20^\circ \end{aligned}$$

Cevap: B

7.


$$m(\widehat{AF}) = a, m(\widehat{FC}) = d, m(\widehat{CK}) = c, m(\widehat{AK}) = b \text{ dersek}$$

$$\left. \begin{aligned} \frac{a-b}{2} &= 50 \Rightarrow a-b = 100 \\ \frac{c-d}{2} &= 32 \Rightarrow c-d = 64 \end{aligned} \right\}$$

$$\begin{array}{r} a - b = 100 \\ + \quad c - d = 64 \end{array}$$

$$\begin{array}{r} (a + c) - (b + d) = 164 \\ + (a + c) + (b + d) = 360 \end{array}$$

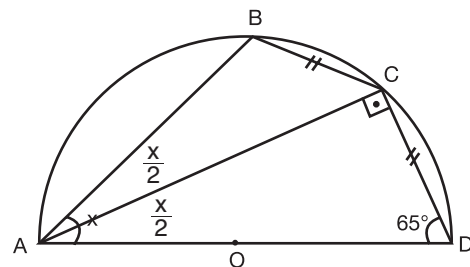
$$2(a + c) = 524$$

$$a + c = 262$$

$$x = \frac{a+c}{2} = \frac{262^\circ}{2} = 131^\circ$$

Cevap: D

8.

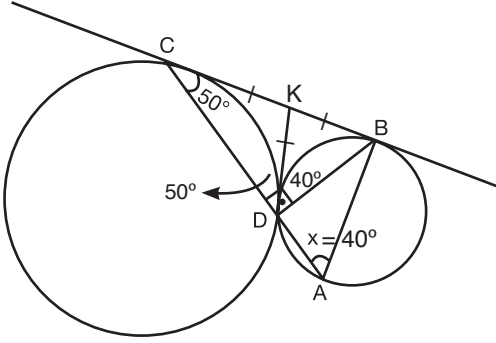


$m(\widehat{ACD}) = 90^\circ$ dir. (Çapı gören çevre açısı)
 $m(\widehat{BAC}) = m(\widehat{CAD}) = \frac{x}{2}$ dir.
 (Eşit uzunluktaki kirisleri gören açılar eşittir.)
 $\widehat{CAD}$ üçgeninde
 $90 + 65 + \frac{x}{2} = 180 \Rightarrow x = 50^\circ$

Cevap: C

ÇEMBERDE AÇILAR

9.



[DK] çizilirse $IDKI = ICKI = IKBI$ olur.

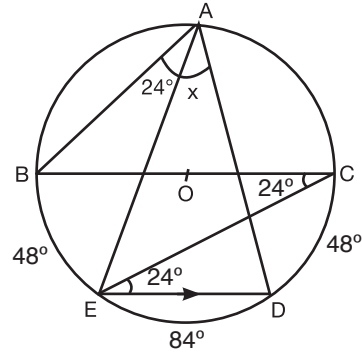
BCD üçgeninde $m(\widehat{BDC}) = 90^\circ$ (muhteşem üçlü)

$m(\widehat{KCD}) = 50^\circ$, $m(\widehat{KDB}) = 40^\circ$ dir.

$m(\widehat{KDB}) = m(\widehat{DAB}) = x = 40^\circ$ (Aynı yayı gören çevre ve teğet giriş açıları eşittir.)

Cevap: C

11.



$$m(\widehat{ABE}) = 24 \Rightarrow m(\widehat{BE}) = 48^\circ$$

$$m(\widehat{BE}) = 48 \Rightarrow m(\widehat{BCE}) = 24^\circ$$

$$m(\widehat{BCE}) = m(\widehat{CED}) = 24^\circ$$

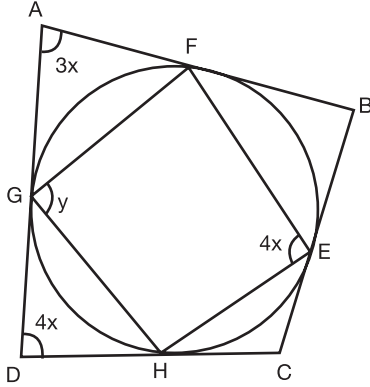
$$m(\widehat{CED}) = 24 \Rightarrow m(\widehat{CD}) = 48^\circ$$

$$m(\widehat{BEC}) = 180^\circ \Rightarrow m(\widehat{ED}) = 84^\circ$$

$$m(\widehat{ED}) = 84^\circ \Rightarrow x = 42^\circ$$

Cevap: D

10.



$$m(\widehat{GH}) = 180 - 4x \quad m(\widehat{GF}) = 180 - 3x$$

$$m(\widehat{FH}) = (180 - 4x) + (180 - 3x) = 360 - 7x$$

$$m(\widehat{FEH}) = 4x \Rightarrow m(\widehat{FH}) = 8x$$

$$360 - 7x = 8x \Rightarrow 360 = 15x$$

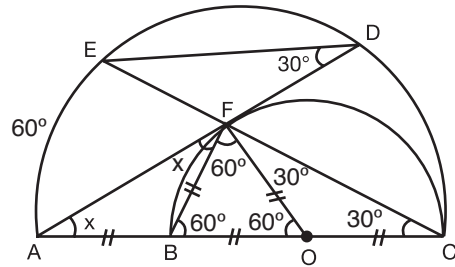
$$\Rightarrow x = 24$$

$$4x + y = 180 \Rightarrow 4 \cdot 24 + y = 180$$

$$\Rightarrow y = 84^\circ$$

Cevap: B

12.



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

$$m(\widehat{BFC}) = 90^\circ \text{ (Çapı gören açı)}$$

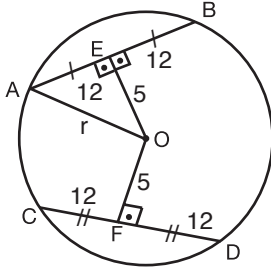
$$(\widehat{FBO}) \text{ üçgeni eşkenar üçgen, } \widehat{ABF} \text{ üçgeni ikizkenardır.}$$

$$2x = 60 \Rightarrow x = 30^\circ$$

Cevap: C

ÇEMBERDE UZUNLUK

1.



$$IABI = 7x - 4$$

$$ICDI = 4x + 8$$

$$IOEI = IOFI \Rightarrow IABI = ICDI$$

$$7x - 4 = 4x + 8$$

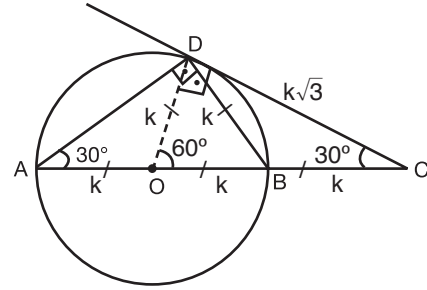
$$x = 4$$

$$IABI = ICDI = 24 \text{ br}$$

AEO üçgeni (5, 12, 13) üçgenidir. $r = 13$ 'tür.

Cevap: D

3.



$$m(\widehat{ADB}) = 90^\circ \text{ (Çapı gören çevre açısı)}$$

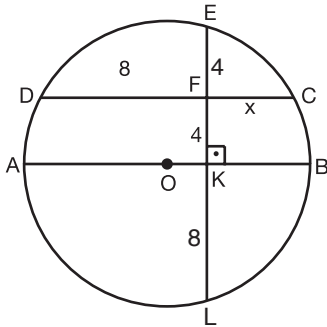
$$m(\widehat{BDC}) = 90^\circ \text{ (Merkezden teğete indirilen dikme)}$$

DAB ve BOC üçgenleri (30, 60, 90) üçgenleridir.

$$IDBI = k \quad IDCI = k\sqrt{3} \quad \frac{|DB|}{|DC|} = \frac{k}{k\sqrt{3}} = \frac{\sqrt{3}}{3} \text{ 'tür.}$$

Cevap: A

2.

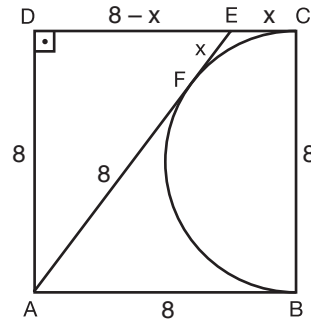


$$IDFI \cdot IFCI = IEFI \cdot IFLI \text{ (İç kuvvet)}$$

$$8 \cdot x = 4 \cdot 12 \Rightarrow x = 6 \text{ 'dır.}$$

Cevap: C

4.



$$ABCD \text{ kare } \angle(ABCD) = 32 \text{ br}$$

$$IABI = IBCI = ICDI = IABI = 8 \text{ br}$$

$$IEFI = IECI = x$$

$$IDEI = 8 - x$$

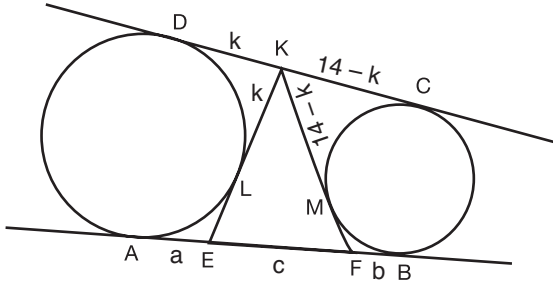
$$IACI = IABI = 8$$

DEA üçgeni (6, 8, 10) üçgenidir. $x = 2$ 'dir.

Cevap: D

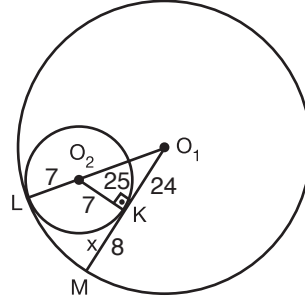
ÇEMBERDE UZUNLUK

5.



$IABI = IDCI = 14$ br $IDKI = k$ dersek
 $IKCI = 14 - k$ olur.
 $IDKI = IKLI = k$, $IKLI = IKMI = 14 - k$
 $IAEI = ILEI = a$
 $IMFI = IFBI = b$
 $IEFI = c$
 $IABI = 14$ br $a + b + c = 14$
 $\text{Ç(KEF)} = \underbrace{k + (14 - k)}_{\text{iç}} + \underbrace{a + b + c}_{\text{iç}} = 28$ br

7.



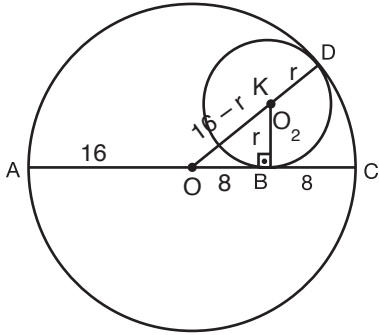
$r_1 + 7 = r_2 = 32$
 $[O_2K] \perp [O_1M]$
 $IL O_2 I = 7$, $IO_2 O_1 I = 25$
 $IO_2 KI = 7$
 $O_1 O_2 K$ üçgeni $(7, 24, 25)$ üçgeni
 $IO_1 KI = 24$ br, $IO_1 MI = 32$ br $\Rightarrow IKMI = x = 8$ 'dir.

Cevap: D

Cevap: D

Tasarı Eğitim Yayınları

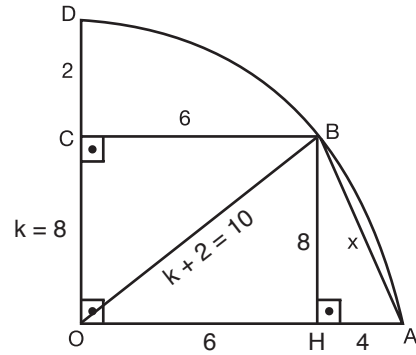
6.



$[AC]$ çap
 $IAOI = IOCI = 16$ br
 $IOBI = 8$ br $IO_2 BI = r$
 $IOKI = 16 - r$ br
 KOB üçgeni $(6, 8, 10)$ üçgenidir.
 $r = 6$ br'dir.

Cevap: C

8.

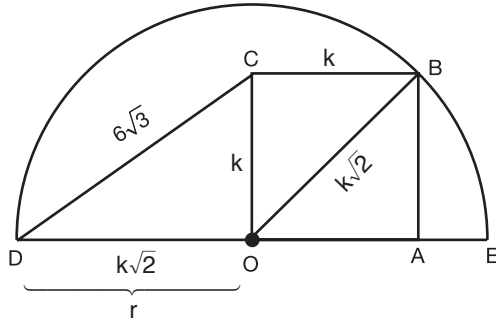


$ICOI = k$ dersek
 $r = k + 2$ olur.
 OCB üçgeni $(6, 8, 10)$ üçgeni
 $k = 8$, $r = 10$ 'dur.
 $IBHI = 8$, $IHA I = 4$
 BHA üçgeninde pisagor uygulanırsa
 $8^2 + 4^2 = x^2 \Rightarrow x = 4\sqrt{5}$ 'tir.

Cevap: D

ÇEMBERDE UZUNLUK

9.



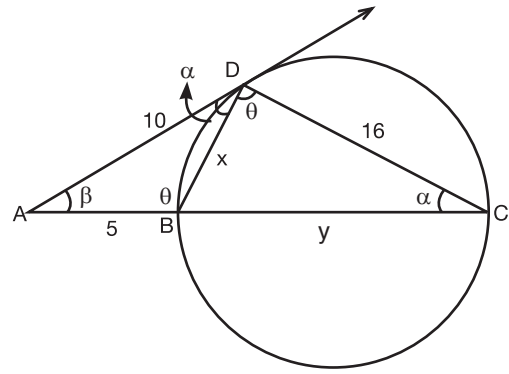
DOC üçgeninde pisagor uygulanırsa

$$(k\sqrt{2})^2 + k^2 = (6\sqrt{3})^2 \Rightarrow k = 6 \text{ 'dir.}$$

$$r = 6\sqrt{2} \text{ 'dir.}$$

Cevap: D

11.



$$\widehat{DAB} \approx \widehat{CAD}$$

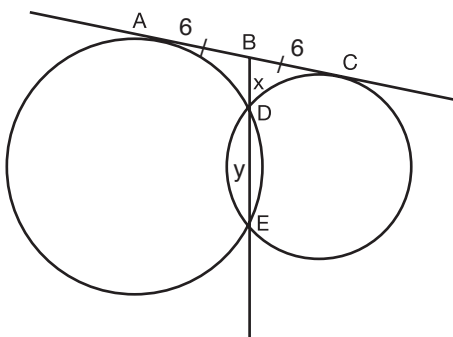
$$\frac{|AB|}{|AD|} = \frac{|DB|}{|DC|}$$

$$\frac{5}{10} = \frac{x}{16}$$

$$x = 8 \text{ br}$$

Cevap: D

10.



$$IACI = 12 \text{ br}$$

$$IBEI = 12 \text{ br}$$

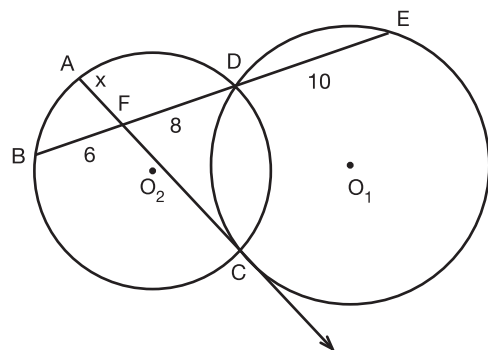
$$IABI^2 = IBDI \cdot IBEI$$

$$IBCI^2 = IBDI \cdot IBEI \Rightarrow IABI = IBCI = 6 \text{ br}$$

$$6^2 = x \cdot 12 \Rightarrow x = 3 \text{ br 'dir.}$$

Cevap: B

12.



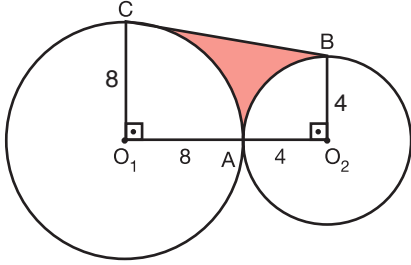
$$IFCI^2 = IFDI \cdot IFEI \quad IFCI^2 = 8 \cdot 18 \Rightarrow IFCI = 12 \text{ br}$$

$$IAFI \cdot IFCI = IBFI \cdot IFDI \Rightarrow x \cdot 12 = 6 \cdot 8 \quad x = 4 \text{ br}$$

Cevap: D

DAİREDE ALAN

1.



$$A(O_1, O_2, BC) = \frac{8+4}{2} \cdot 12 = 72 \text{ br}^2$$

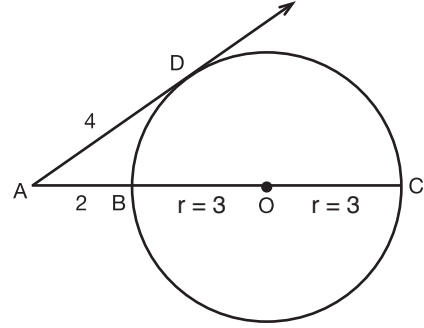
$$AO_1C \text{ çeyrek dairesinin alanı} = \frac{\pi \cdot 8^2}{4} = 16\pi$$

$$BO_2A \text{ çeyrek dairesinin alanı} = \frac{\pi \cdot 4^2}{4} = 4\pi$$

$$\text{Taralı alan} = 72 - (16\pi + 4\pi) = 72 - 20\pi$$

Cevap: A

4.



$$IAD^2 = IAB \cdot IAC$$

$$4^2 = 2 \cdot IAC$$

$$IAC = 8$$

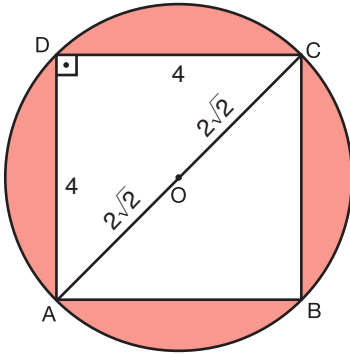
$$IBC = 6 \text{ br}$$

$$r = IOB = IOC = 3 \text{ br}$$

$$\text{Dairenin Alanı} = \pi \cdot 3^2 = 9\pi \text{ br}^2$$

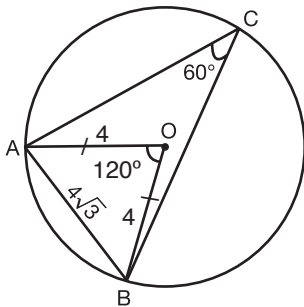
Cevap: C

2.



$$\begin{aligned} \text{Taralı Alan} &= \pi(2\sqrt{2})^2 - 4^2 \\ &= 8\pi - 16 \end{aligned}$$

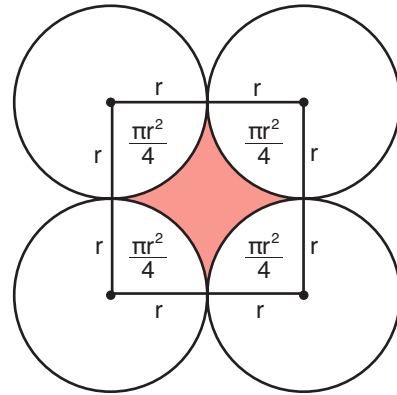
3.



$$\begin{aligned} \text{AOB üçgeni (120, 30, 30) üçgeni, } IOA = IOB = 4 \text{ br} \\ \text{Dairenin Alanı} = \pi \cdot 4^2 = 16\pi \text{ dir.} \end{aligned}$$

Cevap: B

5.



$$\text{Taralı Alan} = 16 - 4\pi \text{ br}^2$$

$$\begin{aligned} 4r^2 - 4 \cdot \frac{\pi r^2}{4} &= 16 - 4\pi \\ r &= 2 \text{ br} \end{aligned}$$

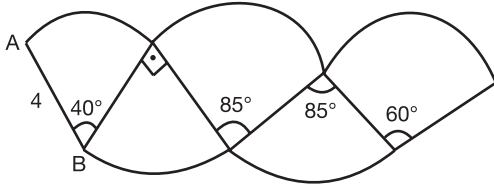
$$\text{Taralı alanın çevresi}$$

$$\begin{aligned} \left(\frac{2\pi \cdot r}{4}\right) \cdot 4 &= \frac{2\pi \cdot 2}{4} \cdot 4 \\ &= 4\pi \text{ br} \end{aligned}$$

Cevap: B

DAİREDE ALAN

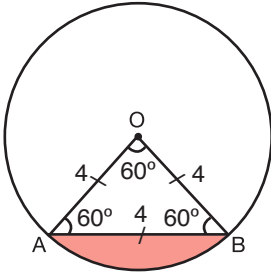
6.



$40 + 90 + 85 + 85 + 60 = 360^\circ$ olduğundan ve her daire diliminin yarıçapı 4 br olduğundan şeklin alanı $\pi r^2 = \pi \cdot 4^2 = 16\pi \text{ br}^2$ dir.

Cevap: D

7.



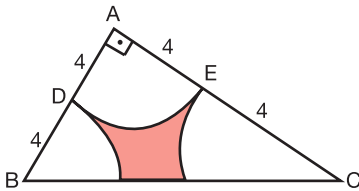
$$IOBI = IABI = 4 \text{ br}$$

Taralı Alan

$$\pi 4^2 \cdot \frac{60}{360} - \frac{4^2 \sqrt{3}}{4} = \frac{8\pi}{3} - 4\sqrt{3}$$

Cevap: E

8.



Daire dilimlerinin yarıçapları 4'er br ve merkez açıları toplamı 180° olduğundan $= \frac{\pi 4^2}{2}$

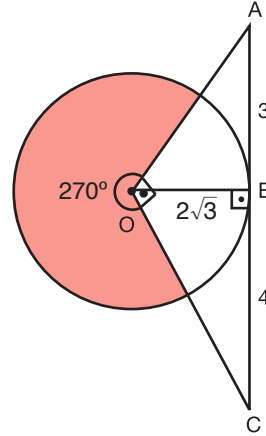
Taralı Alan

Üçgenin Alanı – Daire dilimlerinin toplam alanı

$$\frac{8^2}{2} - \frac{\pi \cdot 4^2}{2} = 32 - 8\pi$$

Cevap: B

9.



OAC üçgeninde öklid uygulanırsa

$$IOBI^2 = IABI \cdot IBCI$$

$$IOBI^2 = 3 \cdot 4 = 12$$

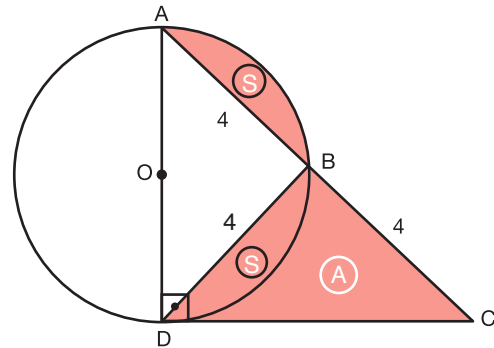
$$IOBI = 2\sqrt{3} \text{ br}$$

Taralı Alan

$$\pi (2\sqrt{3})^2 \cdot \frac{270}{360} = 9\pi \text{ br}^2$$

Cevap: C

10.



$$IBDI = 4 \text{ br (Muhteşem üçlü)}$$

$$m(\widehat{ABD}) = 90^\circ \text{ (Çapı gören çevre açısı)}$$

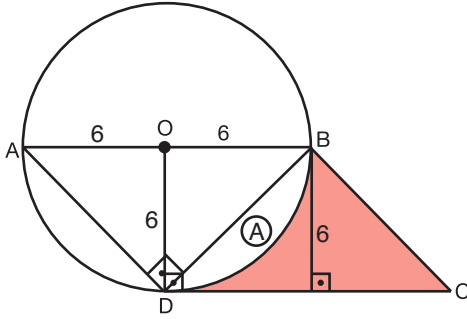
Taralı Alan

$$A(\widehat{BDC}) = \frac{4^2}{2} = 8 \text{ br}^2$$

Cevap: C

DAİREDE ALAN

11.



$$m(\widehat{ADB}) = 90^\circ \text{ (Çapı gören çevre açısı)}$$

$$m(\widehat{ODC}) = 90^\circ \text{ (Merkezden teğete indirilen dikme)}$$

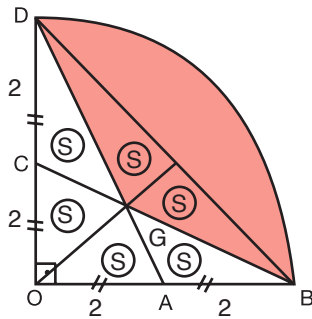
$$A \text{ alanı} = \frac{\pi \cdot 6^2}{4} - \frac{6^2}{2} = 9\pi - 18$$

$$\begin{aligned} \text{Taralı Alan} &= A(\widehat{BCD}) - A \\ &= \frac{12 \cdot 6}{2} - (9\pi - 18) = 54 - 9\pi \end{aligned}$$

Cevap: A

Tasari Eğitim Yayınları

12.



G, DOB üçgeninin ağırlık merkezidir.

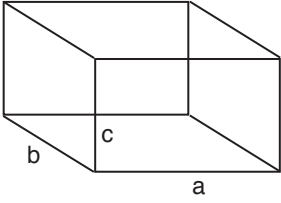
$$A(\text{DOB}) = \frac{4^2}{2} = 8 \text{ br} \Rightarrow S = \frac{8}{6} = \frac{4}{3} \text{ br}^2$$

$$\begin{aligned} \text{Taralı Alan} &= \frac{\pi 4^2}{4} - 4S \\ &= 4\pi - \frac{16}{3} \end{aligned}$$

Cevap: C

KATI CİSİMLER

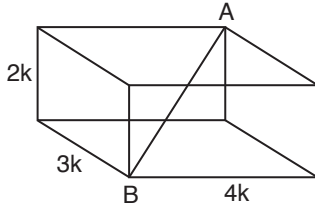
1.



$$\begin{aligned} a \cdot b &= 20 \\ a \cdot c &= 15 \\ x \cdot b \cdot c &= 12 \\ \hline a^2 \cdot b^2 \cdot c^2 &= 20 \cdot 15 \cdot 12 \\ (a \cdot b \cdot c)^2 &= 60^2 \\ \Rightarrow a \cdot b \cdot c &= 60 \end{aligned}$$

Cevap: D

2.



[AB] → cisim köşegeni

$$\begin{aligned} |AB|^2 &= (2k)^2 + (3k)^2 + (4k)^2 \\ (3\sqrt{29})^2 &= 4k^2 + 9k^2 + 16k^2 \\ 9 \cdot 29 &= 29k^2 \\ k^2 &= 9 \\ k &= 3 \\ \rightarrow \text{Hacim} &= 2k \cdot 3k \cdot 4k \\ &= 2 \cdot 3 \cdot 3 \cdot 3 \cdot 4 \cdot 3 \\ &= 648 \end{aligned}$$

3.

• Küplerin kenarları x ve y olsun.

$$\frac{6x^2}{6y^2} = \frac{9}{16} \Rightarrow \frac{x}{y} = \frac{3}{4} \Rightarrow x = 3k$$

$$y = 4k$$

• Büyük olanın hacmi = $128 = (4k)^3$

$$128 = 64k^3 \Rightarrow k^3 = 2$$

⇒ Küçük olanın hacmi = $(3k)^3 = 27 \cdot k^3$

$$= 27 \cdot 2 = 54 \text{ br}^3$$

Cevap: B

4.

• Küpün bir ayrıtı = 10 br olsun

küpün alanı = $6 \cdot 10^2 = 600 \text{ br}^2$

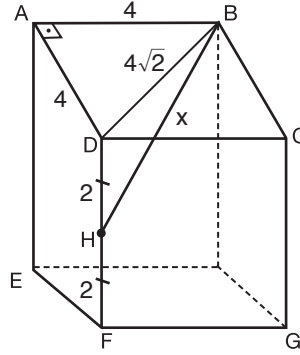
• Küpün bir ayrıtı %10 arttırılırsa = $10 \cdot \frac{110}{100} = 11$

Küpün alanı = $6 \cdot 11^2 = 726 \text{ br}^2$

600	126 artmış
100	?
? = 21 artar	

Cevap: C

5.

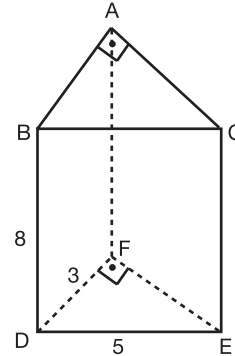


BDH dik üçgeninde

$$\begin{aligned} x^2 &= 2^2 + (4\sqrt{2})^2 \\ x^2 &= 4 + 32 \\ x^2 &= 36 \Rightarrow x = 6 \text{ br} \end{aligned}$$

Cevap: D

6.



• DFE dik üçgeninde, $|FD|^2 + |FE|^2 = |DE|^2$

$$3^2 + |FE|^2 = 5^2 \Rightarrow |FE| = 4 \text{ br}$$

• Yüzey alanı = Yanal alan + 2(Taban alanı)

$$\begin{aligned} &= 8 \cdot (3 + 4 + 5) + 2 \cdot \frac{3 \cdot 4}{2} \\ &= 96 + 12 \\ &= 108 \text{ br}^2 \end{aligned}$$

Cevap: E

Cevap: E

KATI CİSİMLER

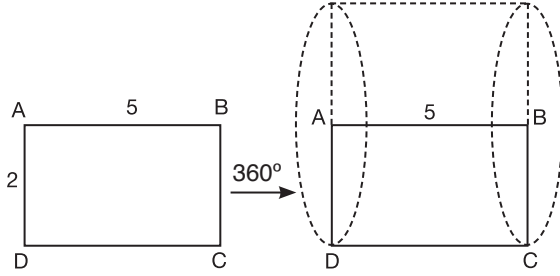
7. $\frac{4}{3}\pi \cdot R^3 = 4\pi \cdot R^2 \cdot \frac{4}{3}$

$\Rightarrow R = 4$

• Yüzey alanı $= 4\pi \cdot R^2$
 $= 4\pi \cdot 4^2 = 64\pi \text{ br}^2$

Cevap: D

8.



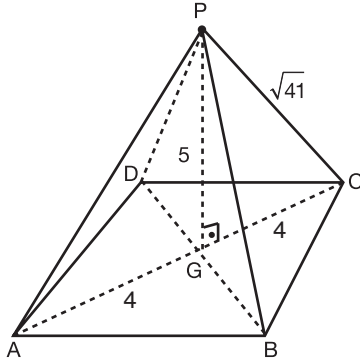
$V_{360^\circ} = \pi \cdot 2^2 \cdot 5$

$V_{360^\circ} = 20\pi \text{ br}^3$

$V_{180^\circ} = 10\pi \text{ br}^3$

Cevap: B

9.



• PGC dik üçgeninde

$5^2 + IGC^2 = (\sqrt{41})^2$

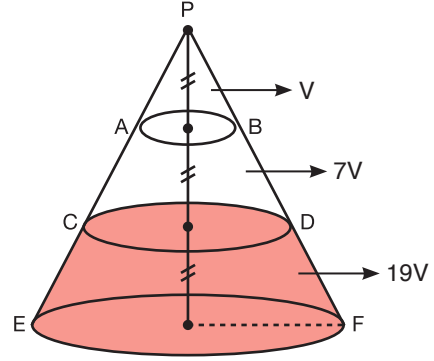
$\Rightarrow IGC = 4 \text{ br}$

• $A(ABCD) = \frac{|AC| \cdot |BD|}{2} = \frac{8 \cdot 8}{2} = 32 \text{ br}^2$

• Hacim $= \frac{A(ABCD) \cdot |PG|}{3} = \frac{32 \cdot 5}{3} = \frac{160}{3} \text{ br}^3$

Cevap: B

10.

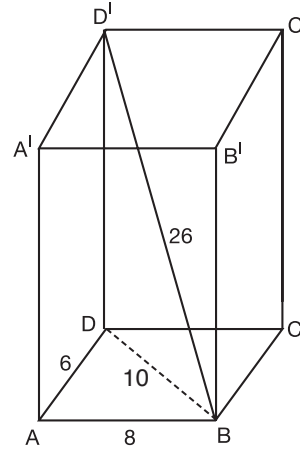


$V = 4 \text{ br}^3$

$\Rightarrow 19V = 19 \cdot 4 = 76 \text{ br}^3$

Cevap: C

11.



• DAB dik üçgeninde

$6^2 + 8^2 = |DB|^2$

$|DB| = 10 \text{ br}$

• D'DB dik üçgeninde

$|D'D|^2 + 10^2 = 26^2$

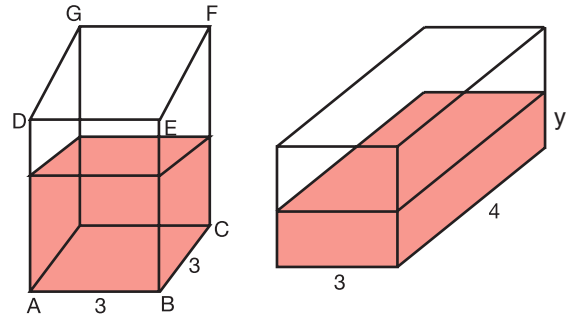
$|D'D| = 24 \text{ br}$

• Hacim $= 6 \cdot 8 \cdot 24$

$= 1152 \text{ br}^3$

Cevap: D

12.



Suyun hacmi $= 24 \text{ br}^3 = 3 \cdot 4 \cdot y$
 $2 \text{ br} = y$

Cevap: C

DOĞRUNUN ANALİTİĞİ

1. $A(\underbrace{x-4}_{-}, \underbrace{x+7}_{+})$ nokta II. bölgede

$$\Rightarrow x-4 < 0, \quad x+7 > 0$$

$$x < 4 \quad x > -7$$

$$-7 < x < 4$$

Buna göre x değerleri toplamı,

$$-6 - 5 - 4 - 3 - 2 - 1 + 0 + 1 + 2 + 3 = -15$$

Cevap: B

2. • $A(\underbrace{m+1}_{0}, \underbrace{m-2}_{0})$ nokta x ekseninde

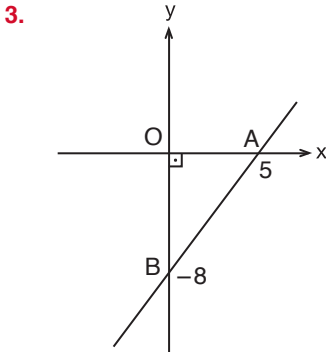
$$\Rightarrow m-2=0 \Rightarrow m=2 \text{ ve } A(3,0)$$

- $B(\underbrace{n+1}_{0}, n+5)$ nokta y ekseninde

$$\Rightarrow n+1=0 \quad n=-1 \text{ ve } B(0,4)$$

$$\bullet |AB| = \sqrt{(3-0)^2 + (0-4)^2} = 5 \text{ br}$$

Cevap: C



$$8x - 5y - 40 = 0$$

- $x=0$ için $y=-8$
- $y=0$ için $x=5$

$$A(\widehat{AOB}) = \frac{5 \cdot 8}{2} = 20 \text{ br}^2$$

Cevap: C

4. $(m-1)x + (m+2)y + 9 = 0$

- $m=1$ için $3y+9=0$

$$y=-3$$

- $m=-2$ için $-3x+9=0$

$$x=3$$

$\Rightarrow$ Sabit nokta $(3,-3)$

Cevap: B

5. • $A(2,-4)$ x eksenine göre simetriği = $P(2,4)$
• $A(2,-4)$ y eksenine göre simetriği = $Q(-2,-4)$
 $\Rightarrow |PQ| = \sqrt{(2+2)^2 + (4+4)^2} = 4\sqrt{5} \text{ br}$

Cevap: B

6. • $x=2t-1 \quad 2t=x+1$
 $t = \frac{x+1}{2}$

- $y=t+2 \Rightarrow t=y-2$

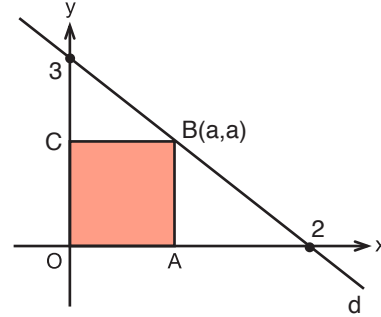
$$\Rightarrow \frac{x+1}{2} = y-2$$

$$x+1=2y-4$$

$$2y-x-5=0$$

Cevap: B

- 7.



- $d: \frac{x}{2} + \frac{y}{3} = 1$

• B noktası d doğrusunun üzerinde olduğundan

$$\frac{a}{2} + \frac{a}{3} = 1 \Rightarrow 5a = 6$$

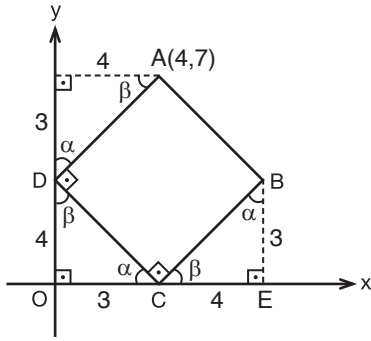
$$a = \frac{6}{5}$$

$$A(ABCO) = a^2 = \left(\frac{6}{5}\right)^2 = \frac{36}{25} \text{ br}^2$$

Cevap: B

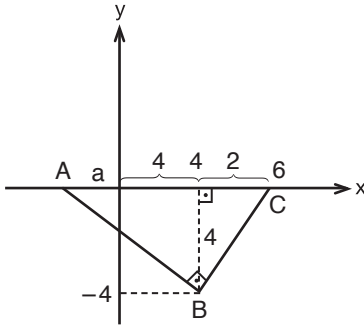
DOĞRUNUN ANALİTİĞİ

8.



Cevap: C

9.



- ABC üçgeninde öklid
 $4^2 = 2 \cdot (a + 4)$
 $a = 4$
 $\Rightarrow |AC| = 4 + 6 = 10$ br

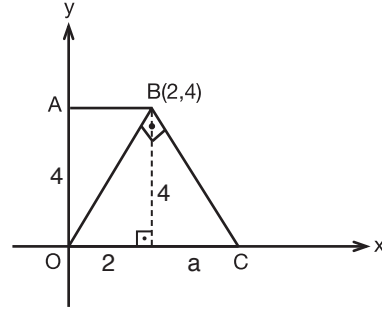
Cevap: D

10. $3y - 2x + 6 < 0$

$3y < 2x - 6$ ise $3y - 2x + 6 = 0$ doğrusunun alt tarafı taranacak.

Cevap: A

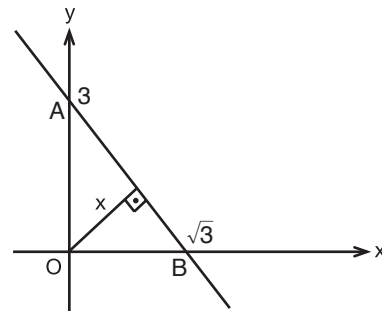
11.



- $\widehat{BOC}$ de öklid
 $4^2 = 2 \cdot a$
 $\Rightarrow a = 8$
- $A(AOCB) = \frac{|OC| + |AB|}{2} \cdot |AO|$
 $= \frac{10 + 2}{2} \cdot 4$
 $= 24 \text{ br}^2$

Cevap: D

12.



- $\widehat{AOB}$ de pisagor
 $3^2 + (\sqrt{3})^2 = |AB|^2$
 $|AB| = 2\sqrt{3} \text{ br}$
- Öklid'den $|AO| \cdot |OB| = |AB| \cdot x$
 $3 \cdot \sqrt{3} = 2\sqrt{3}x$
 $x = \frac{3}{2} \text{ br}$

Cevap: E