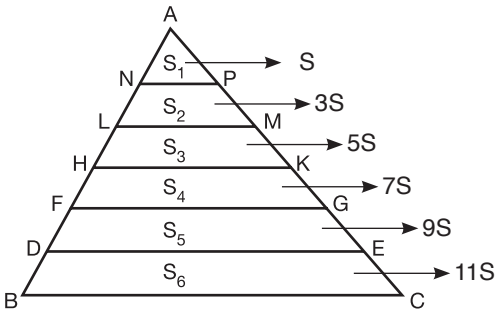
ÜÇGENDE ALAN

1.



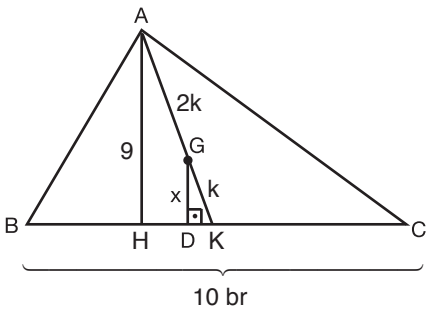
$S_1 + S_3 + S_5 = S + 5S + 9S = 15S$

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

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

Cevap: D

2.

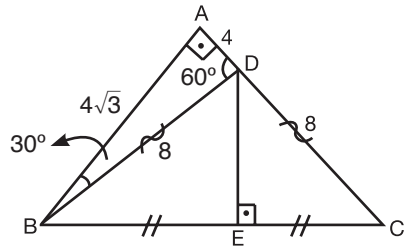


$\frac{|AH| \cdot |BC|}{2} = 45 \qquad \frac{|AH| \cdot 10}{2} = 45 \Rightarrow |AH| = 9 \text{ br}$

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

Cevap: C

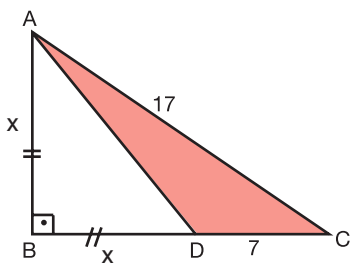
3.



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

Cevap: E

4.



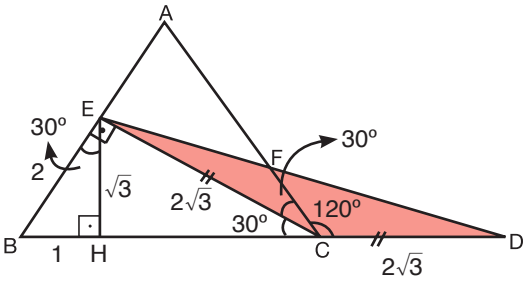
$\widehat{ABC}$ üçgeni (8, 15, 17) üçgendir.

x = 8'dir.

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

Cevap: D

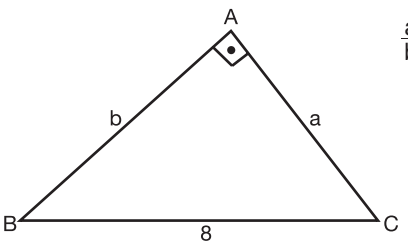
5.



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

Cevap: C

6.



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

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

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

$\widehat{ABC}$'de pisagor teoreminden

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

$a^2 + b^2 = 64$

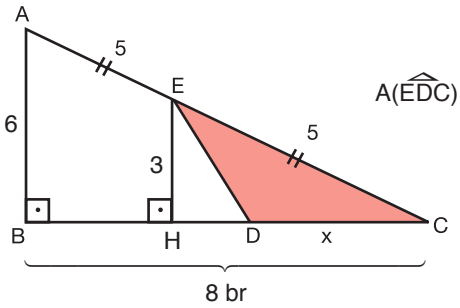
$64 = 4 \cdot ab \Rightarrow a \cdot b = 16$

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

Cevap: C

ÜÇGENDE ALAN

7.



$A(\widehat{EDC}) = \frac{9}{2}\,br^2$

ABC üçgeni (6, 8, 10) üçgendir. IABI = 6 br

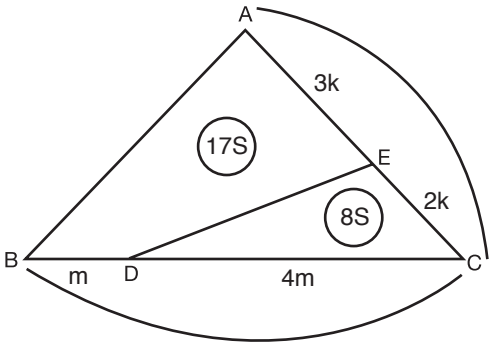
[EH] dikmesi orta tabandır. IEHI = 3 br

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

$\Rightarrow x = 3$

Cevap: C

8.



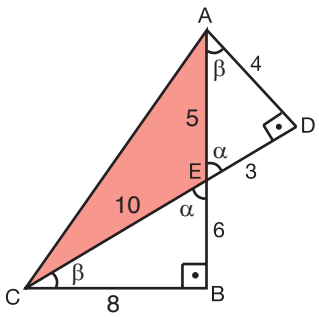
$\frac{A(\overset{\Delta}{EDC})}{A(ABC)} = \frac{2k\cdot 4m}{5k\cdot 5m} = \frac{8}{25}$

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

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

Cevap: D

9.



AED üçgeni (3, 4, 5) üçgendir. IAEI = 5 br

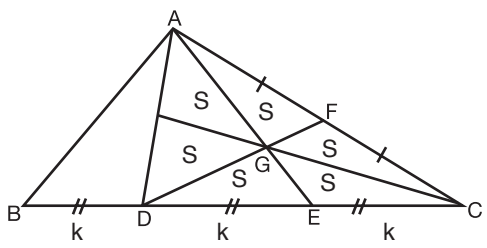
$\widehat{DEA} \approx \widehat{BEC}$'dir.

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

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

Cevap: A

10.



ADC üçgeninde G ağırlık merkezidir.

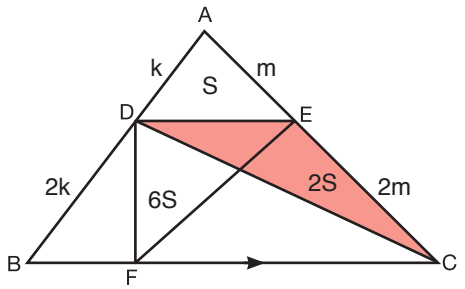
$2S = 4\ br^2$

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

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

Cevap: B

11.



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

ADC üçgeninde A(ADE) = S dersek

A(DEC) = 2S olur.

ABC üçgeninde A(ADC) = 3S ise

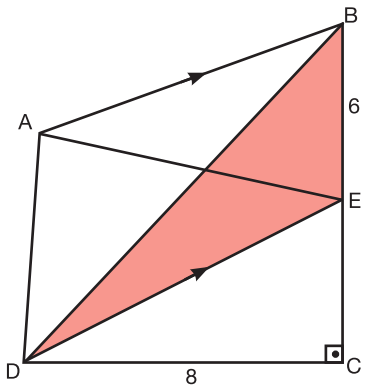
A(BDC) = 6S olur.

A(ABC) = 9S olmuş olur.

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

Cevap: A

12.

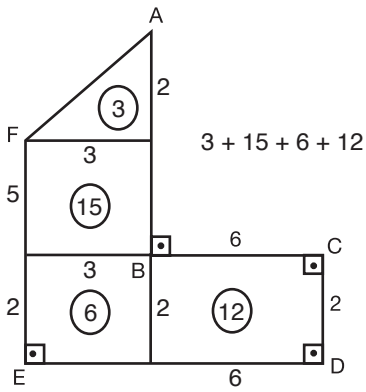


$A(\widehat{ADE}) = A(\widehat{DBE})$'dir.

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

Cevap: C

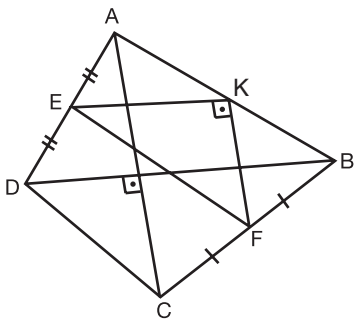
1.



$3 + 15 + 6 + 12 = 36\ br^2$

Cevap: B

2.



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

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

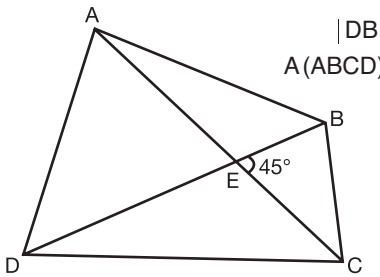
$|KF| = \frac{|AC|}{2} = \frac{8}{7} = 4\ br$

EKF dik üçgeninde pisagor uygulanırsa

$8^2 + 4^2 = |EF|^2, \quad |EF| = 4\sqrt{5}\ br$

Cevap: D

3.



$|DB| = 4\sqrt{2}$

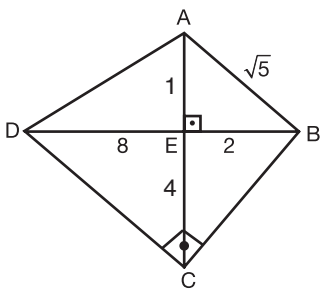
$A(ABCD) = 12\ br^2$

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

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

Cevap: D

4.



ABE üçgeninde pisagor uygulanırsa

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

$\Rightarrow |AE| = 1\ br$

DBC üçgeninde öklid uygulanırsa

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

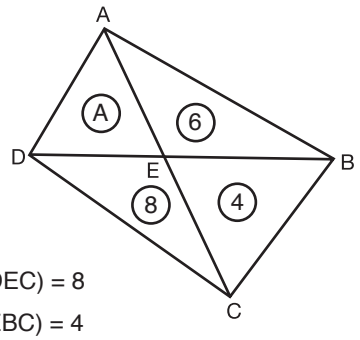
$A(ABCD) = \frac{1}{2} \cdot |AC| \cdot |DB|$

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

$= 25\ br^2$

Cevap: C

5.



$A(DEC) = 8$

$A(EBC) = 4$

$A(AEB) = 6$

$A(DAE) = ?$

$A(DAE) = A\ br^2$ dersek

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

Cevap: D

6. n kenarlı düzgün çokgenin köşegen sayısı

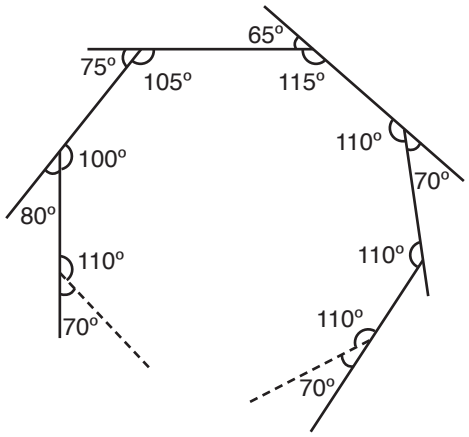
$\frac{n(n-3)}{2}$'dir.

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

Bir dış açısının ölçüsü $\square = \frac{360}{n} = \frac{360}{9} = 40°$

Cevap: B

7.

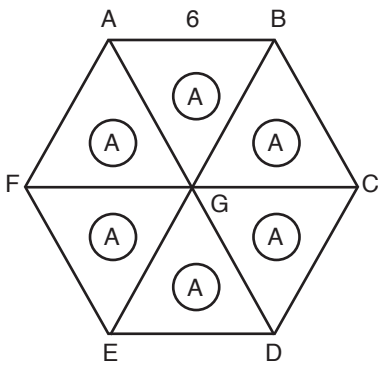


Çokgenin n kenarlı olduğunu düşünürsek

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

Cevap: A

8.



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

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

Cevap: E

9. $y - x = 12°$

CEF üçgeninde

$y + 12° = 3x$

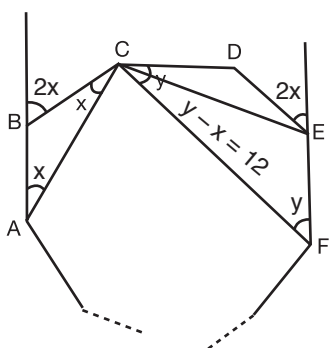
$y - 3x = -12$'dir.

$$\begin{array}{r} y - x = 12 \\ \text{-/ } y - 3x = -12 \\ \hline y - x = 12 \end{array}$$

$$\begin{array}{r} -y + 3x = 12 \\ \hline 2x = 24 \end{array}$$

$x = 12$

$y = 24$

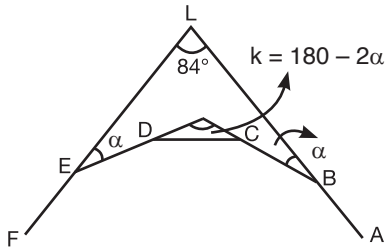


Çokgenin bir iç açısı $108 - 2x$'dir.

$180 - 2x = 180 - 24 = 156°$

Cevap: E

10.



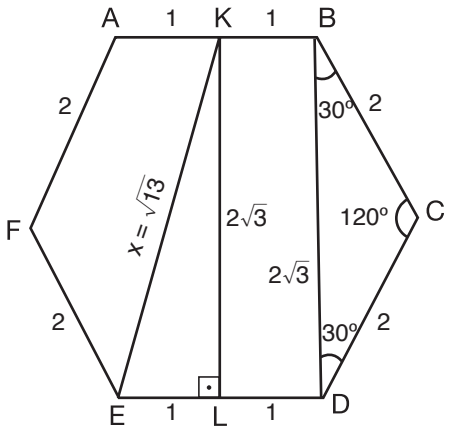
$84 + \alpha + \alpha = 180 - 2\alpha$

$4\alpha = 96°$

$\alpha = 24°$

Cevap: C

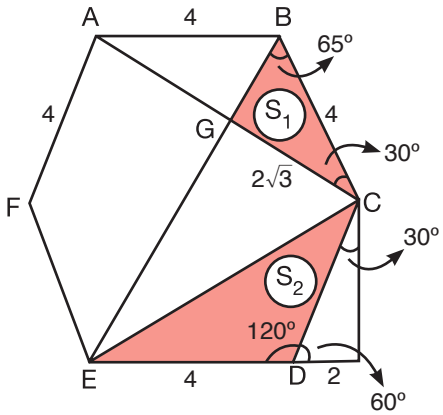
11.



Ç(ABCD) = 12 br

Cevap: A

12.



[BE] simetri eksenidir ve [DE] ⊥ [AC]'dir.

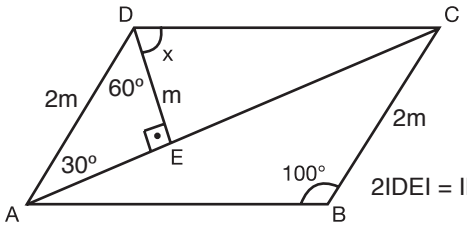
$S_1 = \frac{2\sqrt{3}.2}{2} = 2\sqrt{3}\ br^2$

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

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

Cevap: B

1.



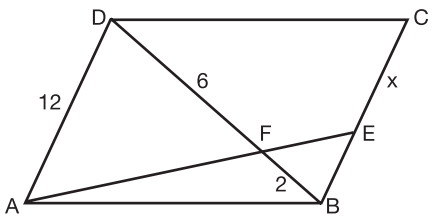
2|DE| = |BC|

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

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

Cevap: C

2.



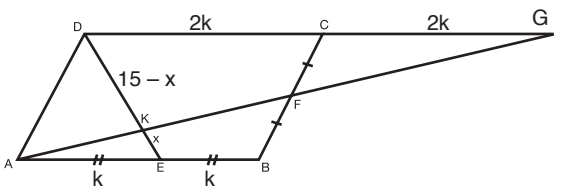
$(\widehat{ADF}) \approx (\widehat{EBF})$

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

$|CB| = 12$ br $\Rightarrow |CE| = x = 8$ br

Cevap: B

3.



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

|AB| = |GC| = 2k

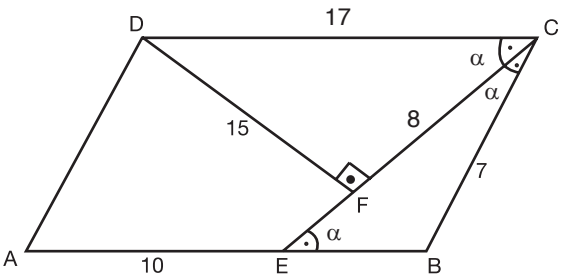
$\widehat{AKE} \approx \widehat{GKD}$'dir.

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

$\Rightarrow x = 3$ br

Cevap: C

4.



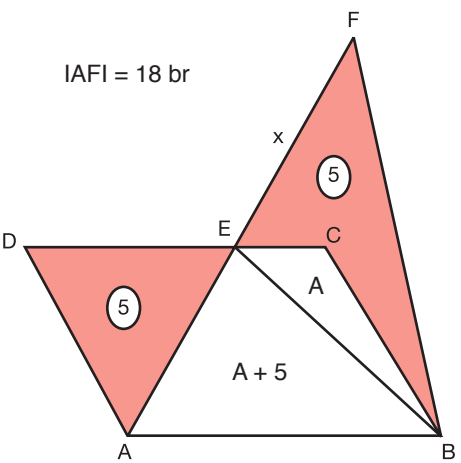
$m(\widehat{DCE}) = m(\widehat{CEB}) = \alpha$ EBC ikizkenar ve |EB| = 7

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

|CF| = 8 br

Cevap: B

5.



ABCD paralelkenarında $A(\overset{\Delta}{AEB}) = \frac{A(ABCD)}{2}$'dir.

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

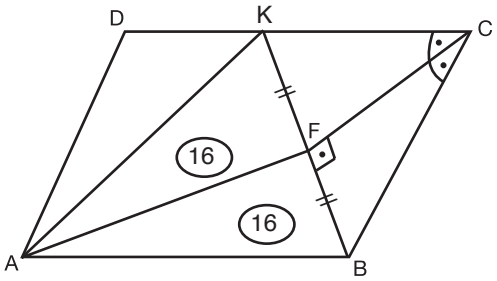
AFB üçgeninde $A(\widehat{AEB}) = A(\widehat{BEF}) = A + 5$ br^2

olduğundan |AE| = |EF| = 9 br'dir.

Cevap: D

TASARI & DEV KADRO

6.



$\widehat{KCB}$ ikizkenar

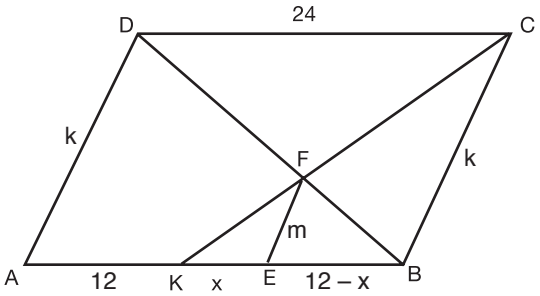
IKFI = IFBI'dir.

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

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

Cevap: E

7.



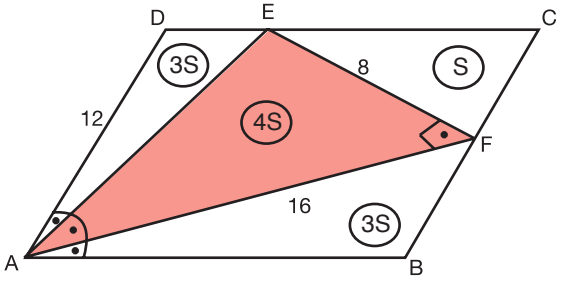
$\widehat{ABD}$'de $\frac{|EB|}{|AB|} = \frac{|EF|}{|AD|} \Rightarrow \frac{12-x}{24} = \frac{m}{k}$

$\widehat{KBC}$'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.

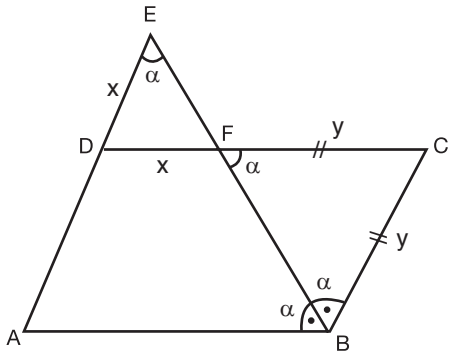


$4S = \frac{8 \cdot 16}{2} \Rightarrow S = 16\ br^2$

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

Cevap: D

9.



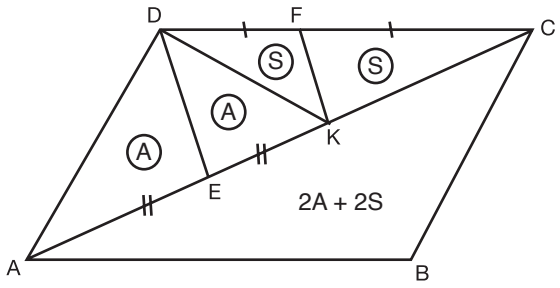
IDEI + IFCI + ICBI = 12 br

$x + y + y = 12\ br \Rightarrow x + 2y = 12\ br$

Ç(ABCD) = 2(x + 2y) = 24 br

Cevap: E

10.



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

$S + A = 24\ br^2$

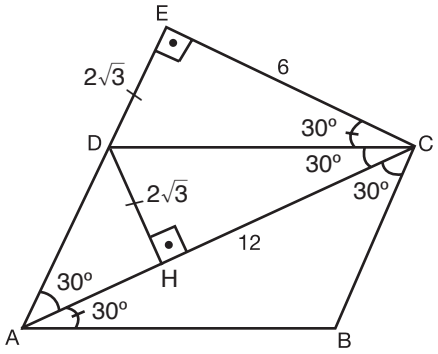
$A(FKC) = A(DFK) = S$

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

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

Cevap: E

11.



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

EAC üçgeninde IACI = 2IECI olduğundan

EAC üçgen (90, 30, 60) üçgenidir.

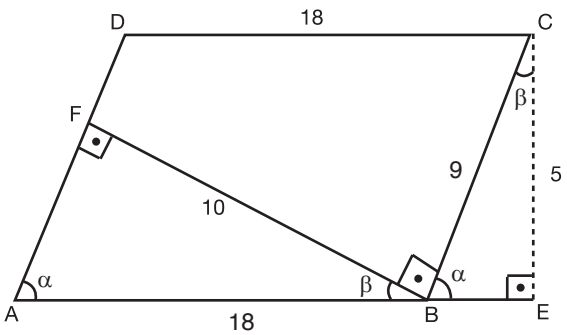
IDHI = $2\sqrt{3}$ br $A(\overset{\Delta}{ADC}) = \frac{2\sqrt{3} \cdot 12}{2} = 12\sqrt{3}$ br^2

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

Cevap: B

TASARI & DEV KADRO

12.



AFB ≈ BEC

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

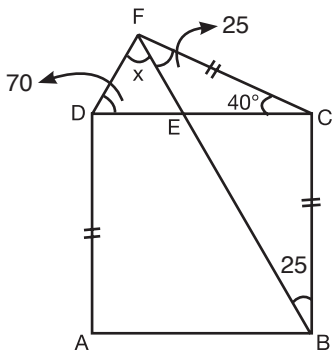
$\frac{10}{5} = \frac{18}{|BC|}$

$|BC| = 9$ br

Ç(ABCD) = 2(18 + 9) = 54 br

Cevap: A

1.



ABCD kare FCB ikizkenar üçgen

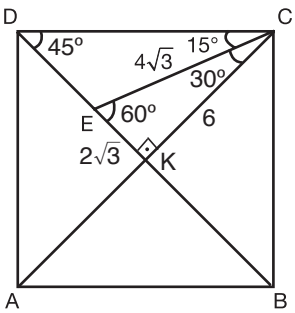
$m(\widehat{CFB}) = m(\widehat{FBC}) = 25^o$

FDC ikizkenar üçgen

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

Cevap: A

2.



[AC] köşegen

EKC (30, 60, 90) üçgen

IKCI = 6 br

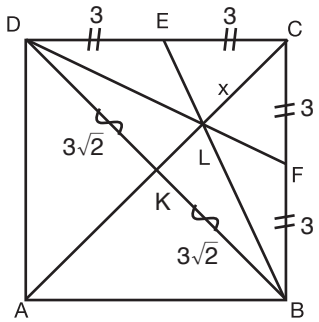
DKC ikizkenar dik üçgen

IDCI = $6\sqrt{2}$ br

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

Cevap: E

3.



Ç(ABCD) = 24 br

IABI = IBCI = ICDI = IADI = 6 br

[BE] ve [DF] kenarortay

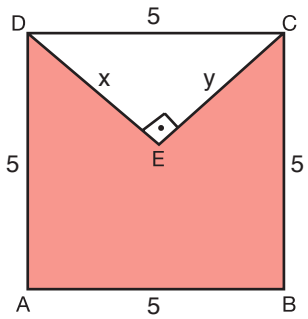
L DCB üçgeninin ağırlık merkezi

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

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

Cevap: B

4.



$A(ABCD) = 25$ br^2

Ç(DEC) = 12 br

IABI = IBCI = ICDI = IADI = 5 br

IDEI = x IECI = y için

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

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

$(x + y)^2 = x^2 + y^2 + 2xy$

$\underline{\quad 25 \quad}$

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

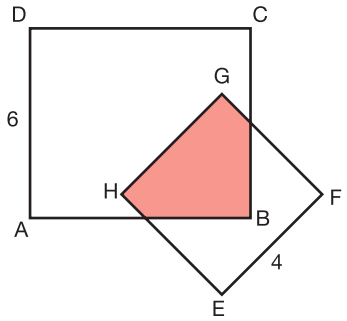
$A(\overset{\Delta}{DEC}) = \frac{xy}{2} = \frac{12}{2} = 6$br^2

Taralı alan = $5^2 - 6 = 19$ br^2

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

Cevap: B

5.

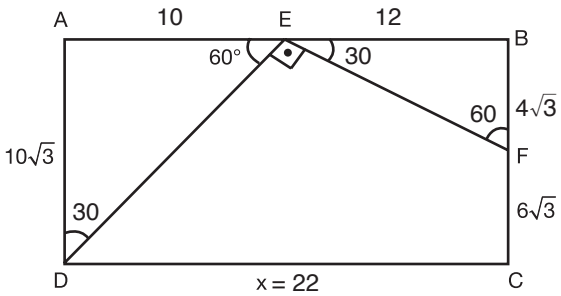


A(ABCD) + A(EFGH) – Taralı Alan = Tüm Şeklin Alanı

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

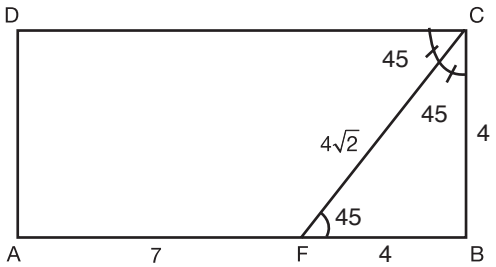
Cevap: E

6.



Cevap: A

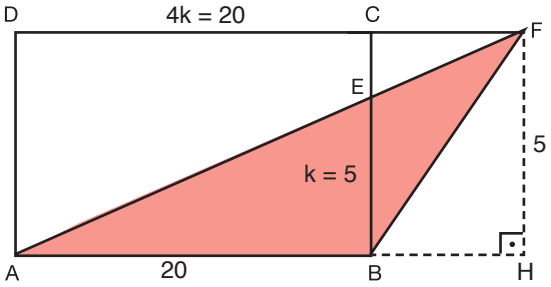
7.



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

Cevap: C

8.



4ICBI = IDCI Ç(ABCD) = 50 br

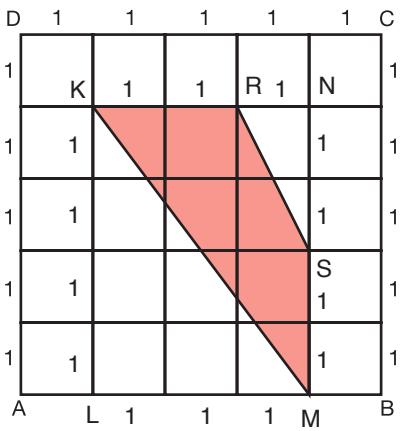
ICBI = k dersek IDCI = 4k olur.

Ç(ABCD) = 10k = 50 ⇒ k = 5 br

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

Cevap: E

9.



Taralı Alan = A(KLMN) – A(KLM) – A(NRS)

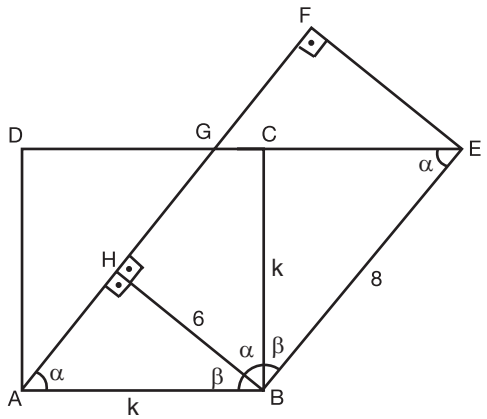
$= 3 \cdot 4 - \frac{3 \cdot 4}{2} - \frac{1 \cdot 2}{2}$

$= 5\ br^2$

Cevap: C

TASARI & DEV KADRO

10.



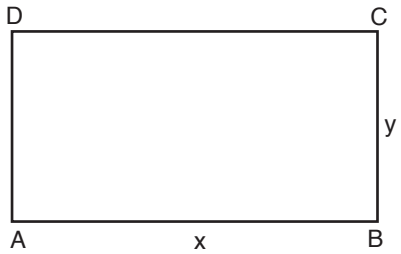
$\widehat{AHB} \approx \widehat{ECB}$'dir.

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

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

Cevap: D

12.



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

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

$xy - x + 2y - 2 = xy$

$-x + 2y = 2$

$\Rightarrow \quad x + y = 13$

$+ \quad -x + 2y = 2$

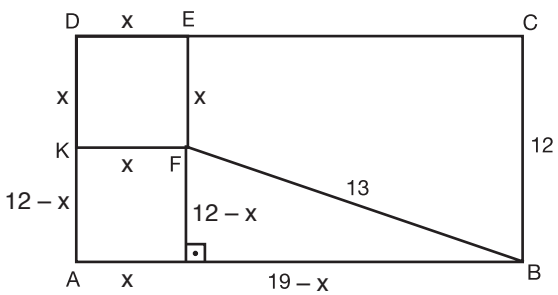
$3y = 15$

$y = 5$ ve $x = 8$

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

Cevap: E

11.

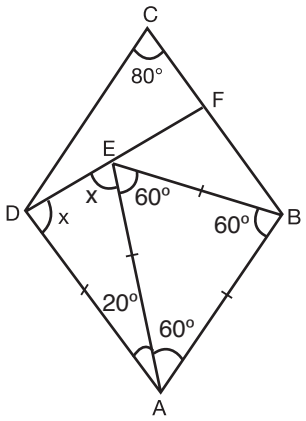


FHB üçgen (5, 12, 13) üçgenidir. (x = 7'dir.)

$A(DEFK) = x^2 = 7^2 = 49\ br^2$'dir.

Cevap: D

1.

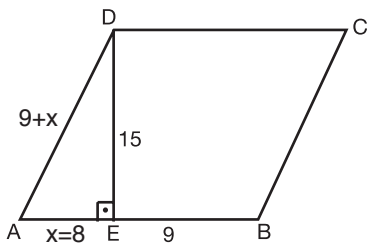


$2x + 20 = 180^o$

$x = 80^o$

Cevap: E

2.

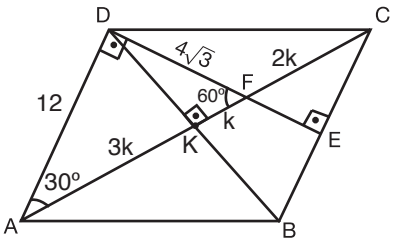


ADE üçgeni (8, 15, 17) üçgenidir. (x = 8)

Ç(ABC) = 17 . 4 = 68 br

Cevap: A

3.



2|FC| = |AF|

|FC| = 2k, |AF| = 4k

|AK| = |KC| = 3k

[AD] // [BC] olduğundan

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

ADF üçgeninde öklid uygulanırsa

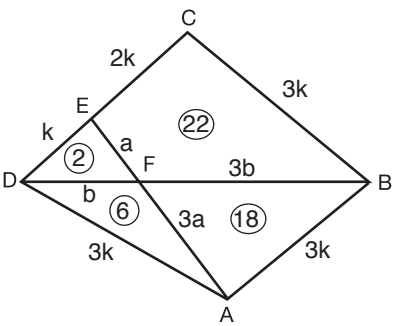
$(4\sqrt{3})^2 = k \cdot (4k) \Rightarrow k = 2\sqrt{3}$ |AF| = 4k = $8\sqrt{3}$

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

Ç(ABCD) = 48 br

Cevap: E

4.



2|DE| = |EC|

↓ ↓

k 2k

$A(DEF) = 2\ br^2$

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

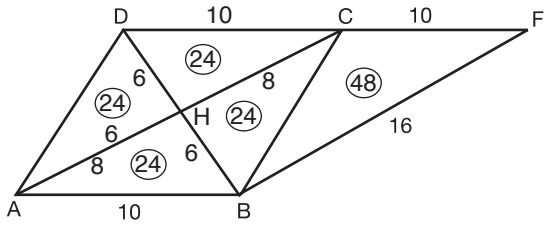
$\frac{|DF|}{FB} = \frac{|ED|}{|AB|} = \frac{|EF|}{|FA|} = \frac{1}{3}$

$A(ABCD) = 48\ br^2$

Cevap: D

TASARI & DEV KADRO

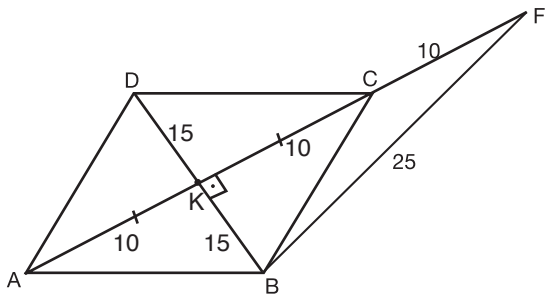
5.



$A(ABFD) = 144\ br^2$

Cevap: B

6.



KBF (15, 20, 25) üçgeni

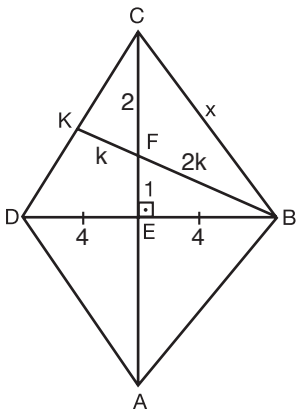
$$A(ABCD) = \frac{|AC|.|BD|}{2}$$

$$= \frac{20.30}{2}$$

$$= 300\ br^2$$

Cevap: E

7.



|DB| = 8 br

2|KF| = |FB|
k 2k

F noktası BCD üçgeninin ağırlık merkezidir.

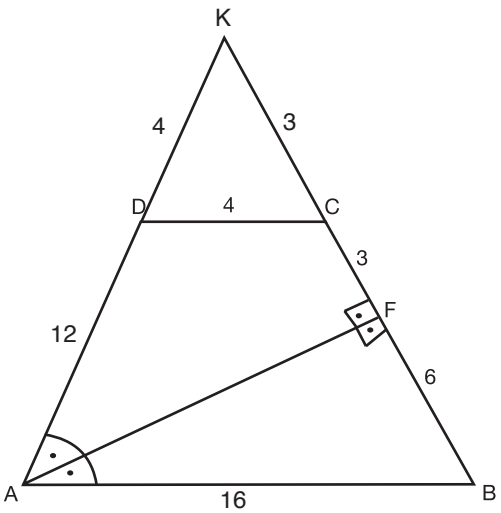
|FE| = 1 br ⇒ |CF| = 2 br

BCE üçgeni (3, 4, 5) üçgenidir.

x = 5 br

Cevap: B

8.



|AB| = |AK|

|KF| = |FB| = 6 br

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

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

$\Rightarrow |AB| = 16\,br$

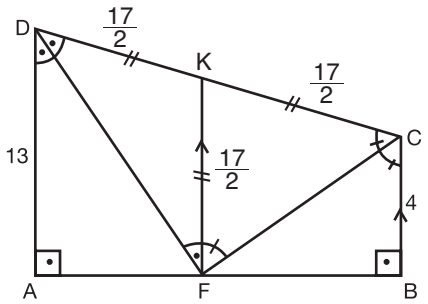
$|KD| = 4\,br$

$|AD| = 12\,br$'dir.

$Ç(ABCD) = 41br$

Cevap: B

9.



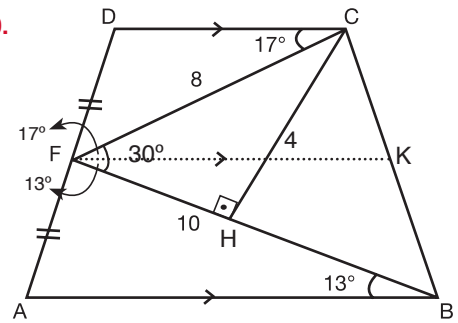
[AD] // [KF] // [BC]

[KF] orta taban $|KF| = \frac{4+13}{2} = \frac{17}{2}$

|DC| = 17 br

Cevap: A

10.



A(ABCD) = 2.A(BCF)

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

m(BFC) = 30°

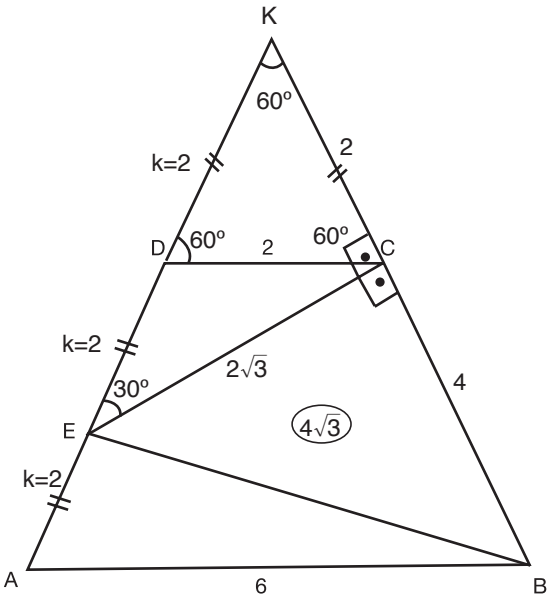
CHF üçgeni (30, 60, 90) üçgeni ve |CH| = 4 br

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

$A(ABCD) = 40\,br^2$

Cevap: C

11.



ABCD ikizkenar yamuk

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

KEC üçgeninde |KD| = |DE| = |DC| = 2 br (Muhteşem üçlü)

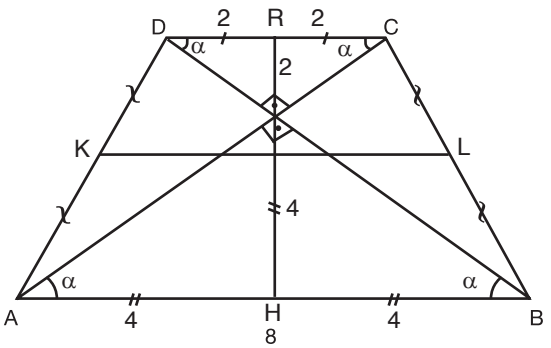
KEC üçgeni (30, 60, 90) üçgenidir ve |EC| = $2\sqrt{3}$

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

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

Cevap: B

12.



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

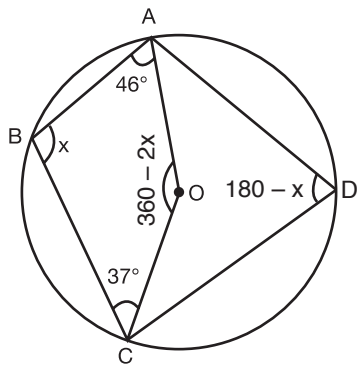
A(ABCD) = |KL| . |RH|

= 6 . 6

= 36 br^2

Cevap: C

1.



ABCD kirişler dörtgeni

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

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

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

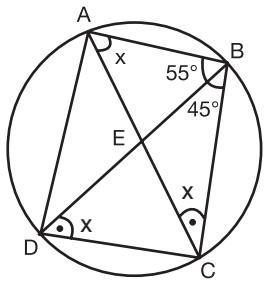
ABCD dörtgeninin iç açıları toplamı 360^o derecedir.

$x + 46 + 37 + 360 - 2x = 360^o$

$x = 83$

Cevap: E

2.



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

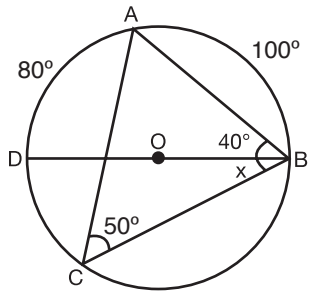
ABC üçgeninde

$x + 55^o + 45^o + x = 180$

$x = 40^o$'dir.

Cevap: C

3.



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

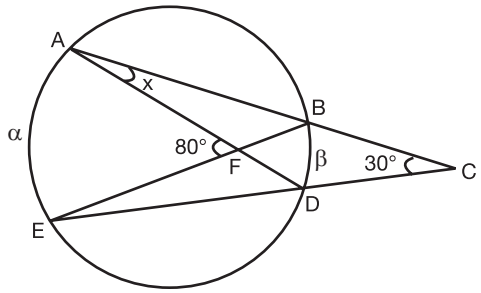
$m(\widehat{AB}) = 100^o \Rightarrow m(\widehat{ACB}) = 50^o$

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

$x = 10^o$

Cevap: B

4.



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

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

$\frac{\alpha + \beta}{2} = 80$ $\quad \alpha + \beta = 160$

$\frac{\alpha - \beta}{2} = 30$ $\quad \alpha - \beta = 60$

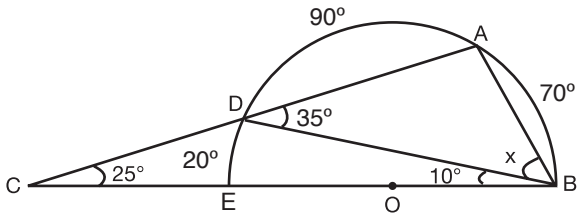
$+$

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

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

Cevap: D

5.



CDB üçgeninde $m(\widehat{ADB}) = 35°$

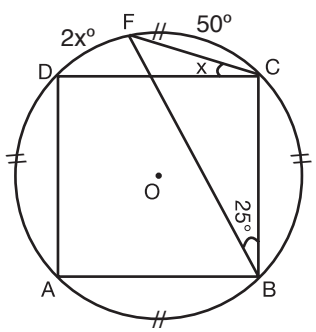
$m(\widehat{DBE}) = 10° \Rightarrow m(\widehat{DE}) = 20°$

$m(\widehat{ADB}) = 35° \Rightarrow m(\widehat{AB}) = 70°$

$m(\widehat{AD}) = 90° \Rightarrow x = 45°$

Cevap: C

6.



$m(\widehat{FBC}) = 25 \Rightarrow m(\widehat{FC}) = 50°$

$m(\widehat{FCD}) = x \Rightarrow m(\widehat{FD}) = 2x°$

$m(\widehat{CD}) = 2x + 50$

$m(\widehat{AB}) = m(\widehat{BC}) = m(\widehat{CD}) = m(\widehat{AD}) = 2x + 50$

$m(\widehat{AB}) + m(\widehat{BC}) + m(\widehat{CD}) + m(\widehat{AD}) = 360$

$4(2x + 50) = 360$

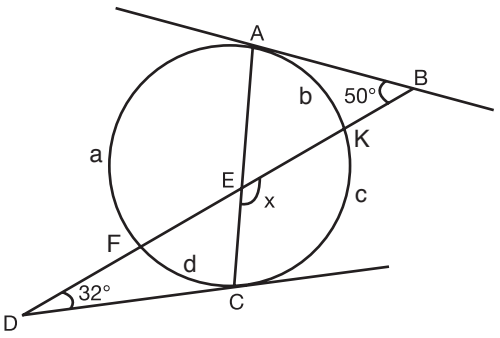
$2x + 50 = 90$

$2x = 40$

$x = 20°$

Cevap: B

7.



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

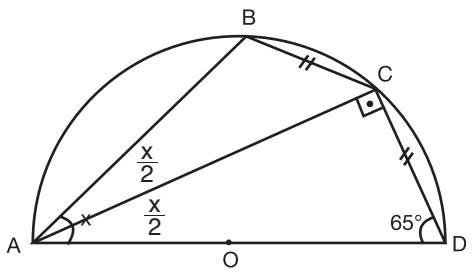
$$\left.\begin{aligned}\frac{a-b}{2} = 50 \Rightarrow a - b = 100\\ \frac{c-d}{2} = 32 \Rightarrow c - d = 64\end{aligned}\right\}$$

$$\begin{aligned} a - b &= 100\\ +\quad c - d &= 64\\ \hline (a + c) - (b + d) &= 164\\ +\ (a + c) + (b + d) &= 360\\ \hline 2(a + c) &= 524\\ a + c &= 262\end{aligned}$$

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

Cevap: D

8.



$m(\widehat{ACD}) = 90°$'dır. (Çapı gören çevre açı)

$m(\widehat{BAC}) = m(\widehat{CAD}) = \frac{x}{2}$'dir.

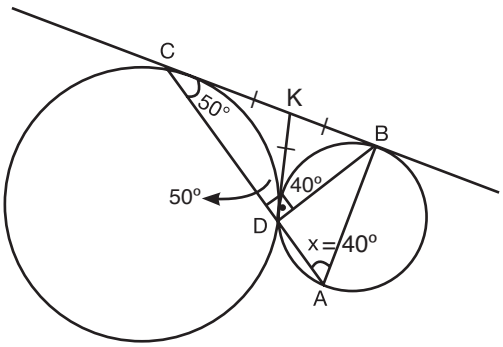
(Eşit uzunluktaki kirişleri gören açılar eşittir.)

$\widehat{CAD}$ üçgeninde

$90 + 65 + \frac{x}{2} = 180 \Rightarrow x = 50°$

Cevap: C

9.



[DK] çizilirse IDKI = ICKI = IKBI olur.

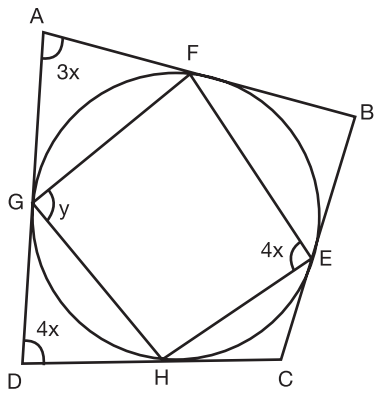
BCD üçgeninde $m(\widehat{BDC}) = 90^o$ (muhteşem üçlü)

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

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

Cevap: C

10.



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

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

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

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

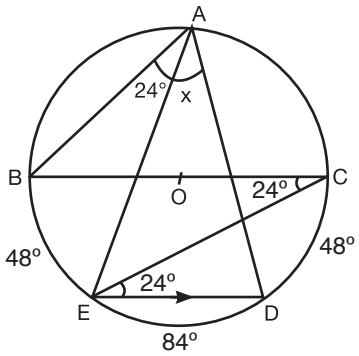
$\Rightarrow x = 24$

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

$\Rightarrow y = 84^o$

Cevap: B

11.



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

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

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

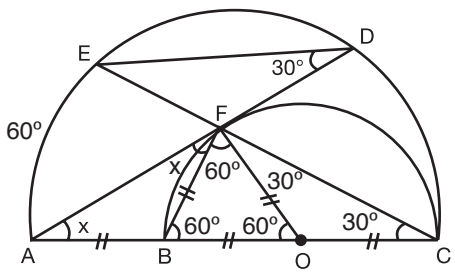
$m(\widehat{CED}) = 24 \Rightarrow m(\widehat{CD}) = 48^o$

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

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

Cevap: D

12.



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

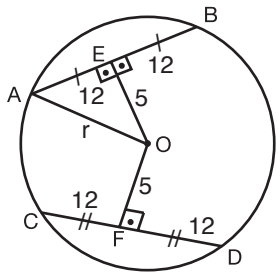
$m(\widehat{BFC}) = 90^o$ (Çapı gören açı)

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

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

Cevap: C

1.



IABI = 7x – 4

ICDI = 4x + 8

IOEI = IOFI ⇒ IABI = ICDI

7x – 4 = 4x + 8

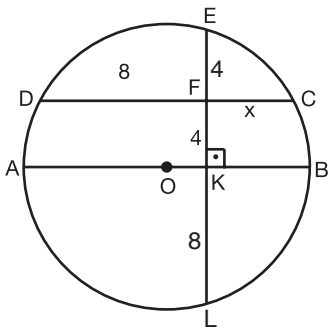
x = 4

IABI = ICDI = 24 br

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

Cevap: D

2.

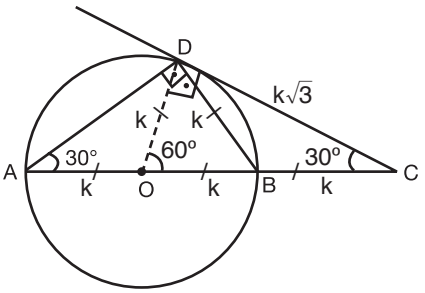


IDFI·IFCI = IEFI·IFLI (İç kuvvet)

8 · x = 4 · 12 ⇒ x = 6'dır.

Cevap: C

3.



m(ADB) = 90° (Çapı gören çevre açı)

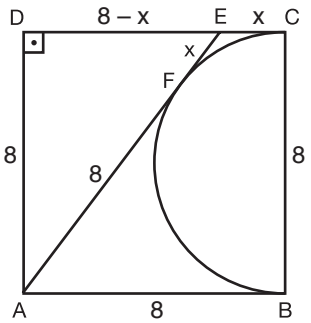
m(BDC) = 90° (Merkezden teğete indirilen dikme)

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

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

Cevap: A

4.



ABCD kare Ç(ABCD) = 32 br

IABI = IBCI = ICDI = IABI = 8 br

IEFI = IECI = x

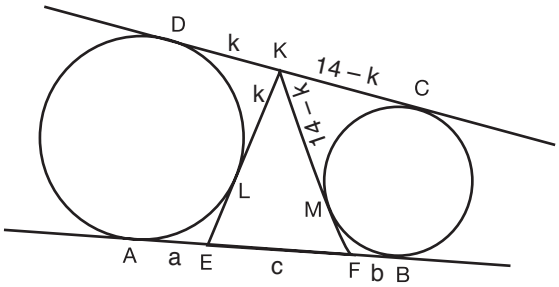
IDEI = 8 – x

IACI = IABI = 8

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

Cevap: D

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

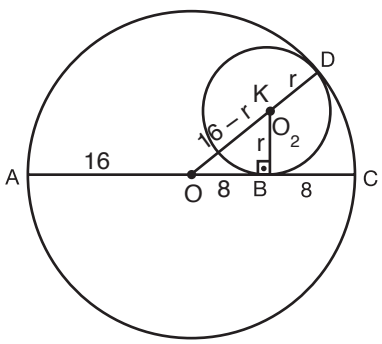
IEFI = c

IABI = 14 br a + b + c = 14

Ç(KEF) = $\underbrace{k + (14 - k)}_{\text{iç}} + \underbrace{a + b + c}_{\text{iç}} = 28$ br

Cevap: D

6.



[AC] çap

IAOI = IOCI = 16 br

IOBI = 8 br $IO_2BI = r$

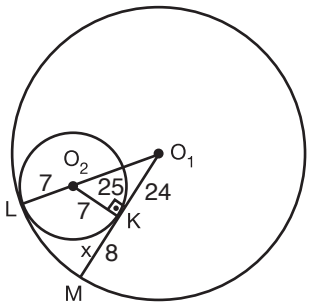
IOKI = 16 – r br

KOB üçgeni (6, 8, 10) üçgenidir.

r = 6 br'dir.

Cevap: C

7.



$r_1 + 7 \quad r_2 = 32$

$[O_2K] \perp [O_1M]$

$ILO_2I = 7, \quad IO_2O_1I = 25$

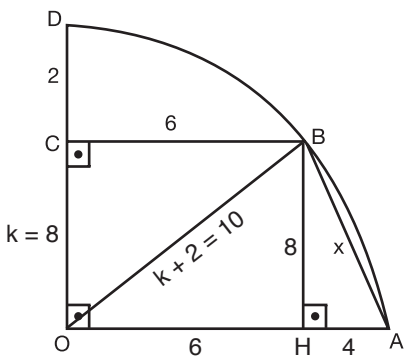
$IO_2KI = 7$

O_1O_2K üçgeni (7, 24, 25) üçgeni

$IO_1KI = 24$ br, $IO_1MI = 32$ br $\Rightarrow$ IKMI = x = 8'dir.

Cevap: D

8.



ICOI = k dersek

r = k + 2 olur.

OCB üçgeni (6, 8, 10) üçgeni

k = 8, r = 10'dur.

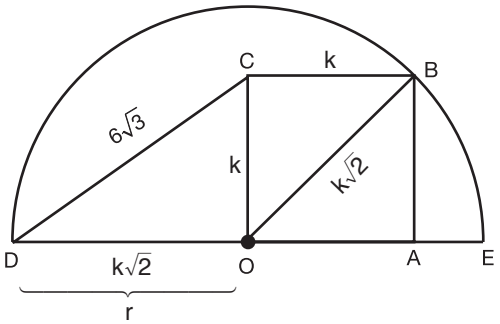
IBHI = 8, IHAI = 4

BHA üçgeninde pisagor uygulanırsa

$8^2 + 4^2 = x^2 \Rightarrow x = 4\sqrt{5}$'tir.

Cevap: D

9.



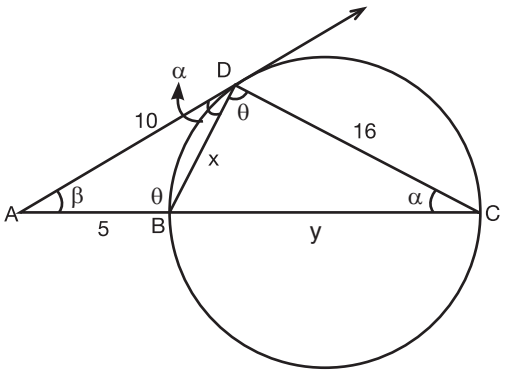
DOC üçgeninde pisagor uygulanırsa

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

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

Cevap: D

11.



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

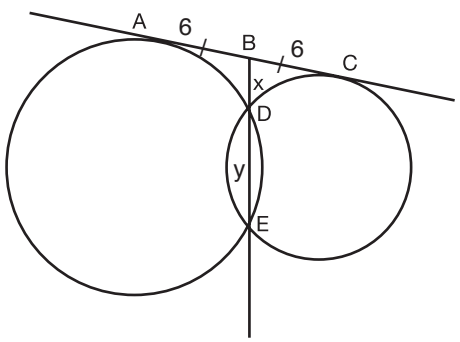
$\frac{|AB|}{|AD|} = \frac{|DB|}{|DC|}$

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

$x = 8$ br

Cevap: D

10.



$|AC| = 12$ br

$|BE| = 12$ br

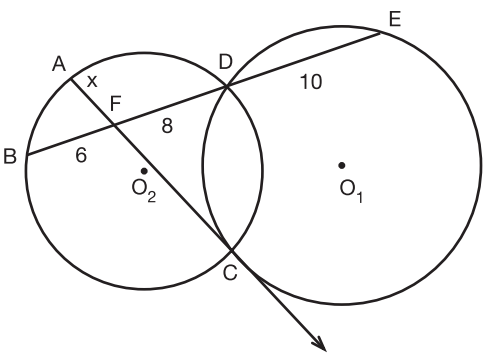
$|AB|^2 = |BD| \cdot |BE|$

$|BC|^2 = |BD| \cdot |BE| \Rightarrow |AB| = |BC| = 6$ br

$6^2 = x.12 \Rightarrow x = 3$ br'dir.

Cevap: B

12.

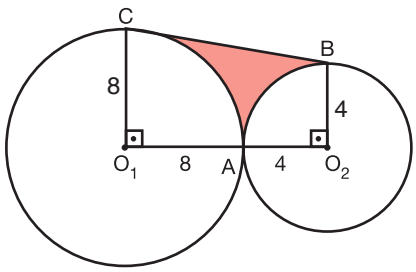


$|FC|^2 = |FD| \cdot |FE|$ $|FC|^2 = 8 \cdot 18 \Rightarrow |FC| = 12$ br

$|AF| \cdot |FC| = |BF| \cdot |FD| \Rightarrow x \cdot 12 = 6 \cdot 8$ $x = 4$ br

Cevap: D

1.



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

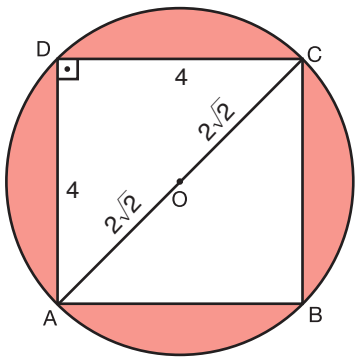
AO_1C çeyrek dairesinin alanı $= \frac{\pi \cdot 8^2}{4} = 16\pi$

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

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

Cevap: A

2.

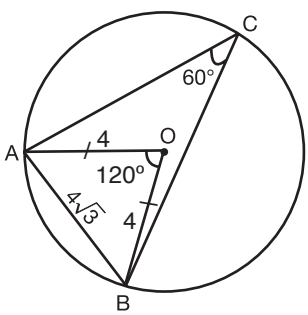


Taralı Alan $= \pi(2\sqrt{2})^2 - 4^2$

$= 8\pi - 16$

Cevap: E

3.

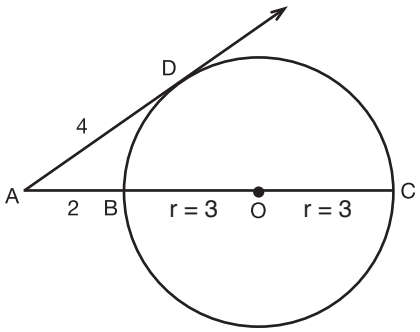


AOB üçgen (120, 30, 30) üçgeni, IAOI = IOBI = 4 br

Dairenin Alanı $= \pi \cdot 4^2 = 16\,\pi$'dir.

Cevap: B

4.



$IADI^2 = IABI \cdot IACI$

$4^2 = 2 \cdot IACI$

$IACI = 8$

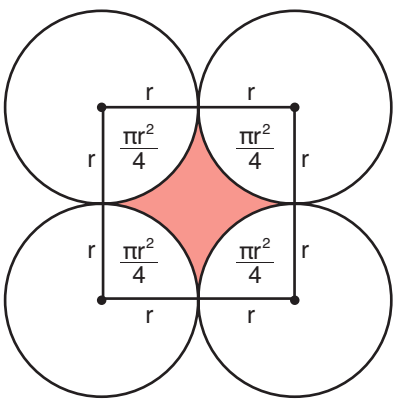
$IBCI = 6$ br

$r = IBOI = IOCI = 3$ br

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

Cevap: C

5.



Taralı Alan $= 16 - 4\pi\ br^2$

$4r^2 - 4 \cdot \frac{\pi r^2}{4} = 16 - 4\pi$

$r = 2$ br

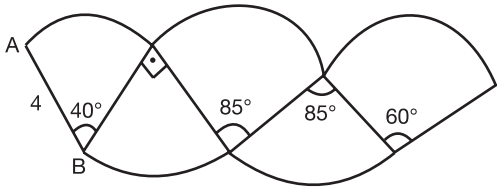
Taralı alanın çevresi

$\left(\frac{2\pi \cdot r}{4}\right) \cdot 4 = \frac{2\pi \cdot 2}{4} \cdot 4$

$= 4\pi$ br

Cevap: B

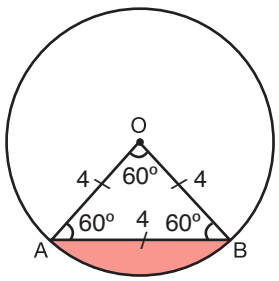
6.



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

Cevap: D

7.



IOBI = IABI = 4 br

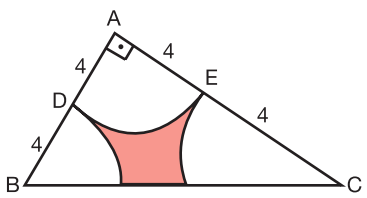
Taralı Alan

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

$= \frac{8\pi}{3} - 4\sqrt{3}$

Cevap: E

8.



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

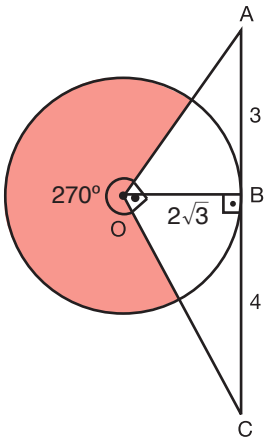
Taralı Alan

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

$IOBI^2 = IABI \cdot IBCI$

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

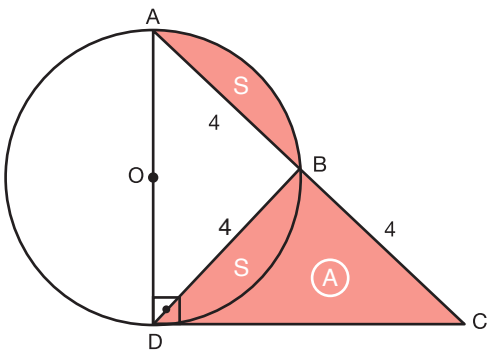
$IOBI = 2\sqrt{3}$ br

Taralı Alan

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

Cevap: C

10.



IBDI = 4 br (Muhteşem üçlü)

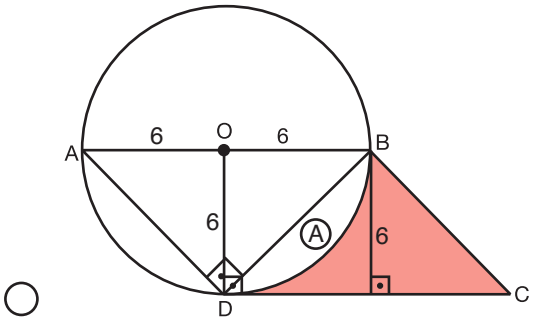
$m(\widehat{ABD}) = 90^\circ$ (Çapı gören çevre açı)

Taralı Alan

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

Cevap: C

11.



$m(\widehat{ADB}) = 90^o$ (Çapı gören çevre açı)

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

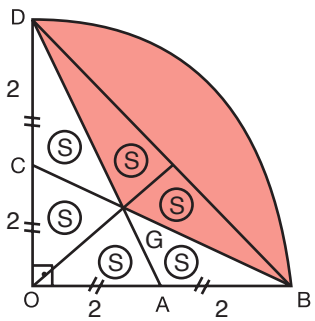
A alanı $= \frac{\pi \cdot 6^2}{4} - \frac{6^2}{2} = 9\pi - 18$

Taralı Alan $= A(\widehat{BCD}) - A$

$= \frac{12 \cdot 6}{2} - (9\pi - 18) = 54 - 9\pi$

Cevap: A

12.



G, DOB üçgeninin ağırlık merkezidir.

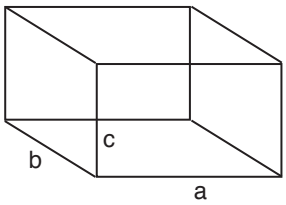
$A(DOB) = \frac{4^2}{2} = 8\,br \Rightarrow S = \frac{8}{6} = \frac{4}{3}\,br^2$

Taralı Alan $= \frac{\pi 4^2}{4} - 4S$

$= 4\pi - \frac{16}{3}$

Cevap: C

1.



a.b = 20
a.c = 15
x b.c = 12

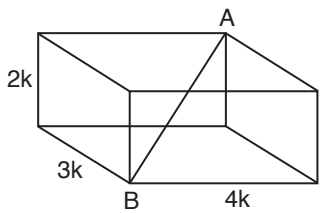
$a^2.b^2.c^2 = 20.15.12$

$(a.b.c)^2 = 60^2$

$\Rightarrow a.b.c = 60$

Cevap: D

2.



[AB] → cisim köşegeni

$|AB|^2 = (2k)^2 + (3k)^2 + (4k)^2$

$(3\sqrt{29})^2 = 4k^2 + 9k^2 + 16k^2$

$9.29 = 29k^2$

$k^2 = 9$

$k = 3$

→ Hacim = 2k.3k.4k

= 2.3.3.3.4.3

= 648

Cevap: E

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 = $128 = (4k)^3$

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

$\Rightarrow$ Küçük olanın hacmi = $(3k)^3 = 27.k^3$

$= 27.2 = 54\ br^3$

Cevap: B

4. • Küpün bir ayrıtı = 10 br olsun

küpün alanı = $6.10^2 = 600\ br^2$

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

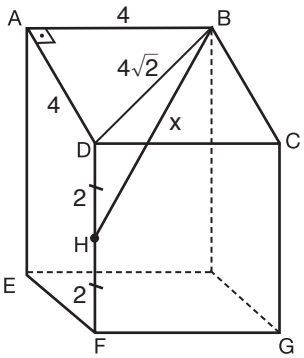
Küpün alanı = $6.11^2 = 726\ br^2$

600	126 artmış
100	?

? = 21 artar

Cevap: C

5.



BDH dik üçgeninde

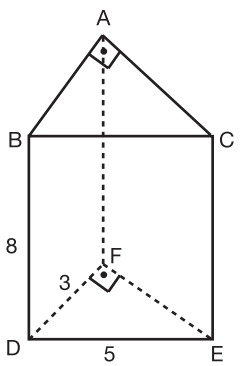
$x^2 = 2^2 + (4\sqrt{2})^2$

$x^2 = 4 + 32$

$x^2 = 36 \Rightarrow x = 6$ br

Cevap: D

6.



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

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

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

$= 8.(3 + 4 + 5) + 2.\frac{3.4}{2}$

$= 96 + 12$

$= 108\ br^2$

Cevap: E

TASARI & DEV KADRO

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

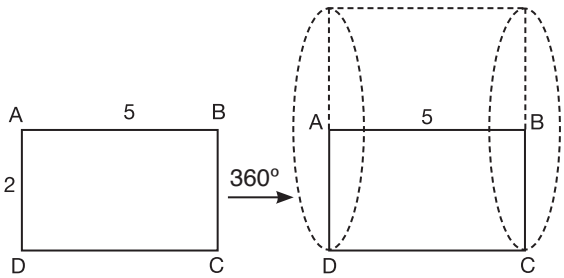
$\Rightarrow R = 4$

• Yüzey alanı $= 4\pi.R^2$

$= 4\pi.4^2 = 64\pi$ br^2

Cevap: D

8.



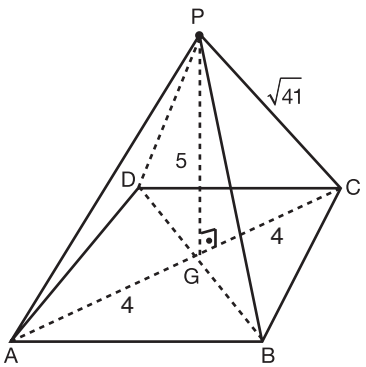
$V_{360°} = \pi.2^2.5$

$V_{360°} = 20\pi$ br^3

$V_{180°} = 10\pi$ br^3

Cevap: B

9.



• PGC dik üçgeninde

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

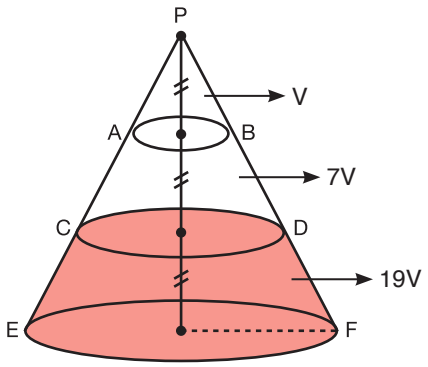
$\Rightarrow |GC| = 4$ br

• $A(ABCD) = \frac{|AC|.|BD|}{2} = \frac{8.8}{2} = 32$ br^2

• Hacim $= \frac{A(ABCD).|PG|}{3} = \frac{32.5}{3} = \frac{160}{3}$ br^3

Cevap: B

10.

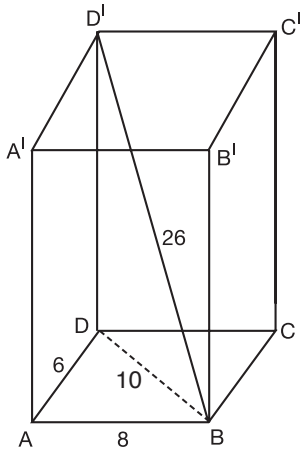


$V = 4$ br^3

$\Rightarrow 19V = 19.4 = 76$ br^3

Cevap: C

11.



• DAB dikküçgeninde

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

$|DB| = 10$ br

• D'DB dik üçgeninde

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

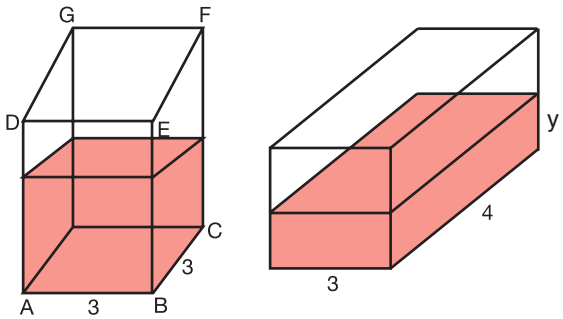
$|D'D| = 24$ br

• Hacim $= 6.8.24$

$= 1152$ br^3

Cevap: D

12.



Suyun hacmi = 24 br^3 = 3.4.y

2 br = y

Cevap: C

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

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

$x<4 \qquad x>-7$

$-7<x<4$

Buna göre x değerleri toplamı,

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

Cevap: B

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

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

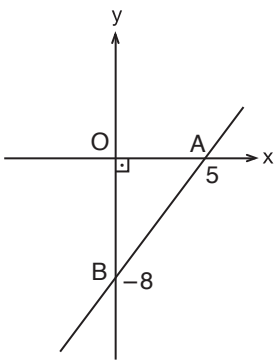
• $B(\underbrace{n+1}_{0}, n+5)$ nokta y ekseni üzerinde

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

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

Cevap: C

3.



$8x-5y-40=0$

• $x=0$ için $y=-8$

• $y=0$ için $x=5$

$A(\widehat{AOB}) = \frac{5.8}{2} = 20 \text{ br}^2$

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 $= Q(-2,-4)$

$\Rightarrow |PQ| = \sqrt{(2+2)^2+(4+4)^2} = 4\sqrt{5}$ br

Cevap: B

6. • $x=2t-1 \quad 2t=x+1$

$t=\frac{x+1}{2}$

• $y=t+2 \Rightarrow t=y-2$

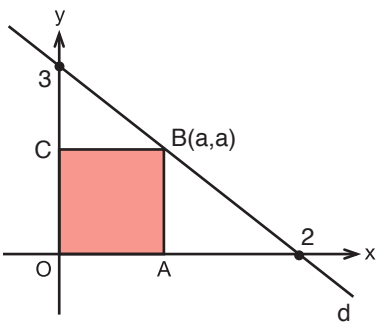
$\Rightarrow \frac{x+1}{2} = y-2$

$x+1=2y-4$

$2y-x-5=0$

Cevap: B

7.



• $d: \frac{x}{2}+\frac{y}{3}=1$

• B noktası d doğrusunun üzerinde olduğundan

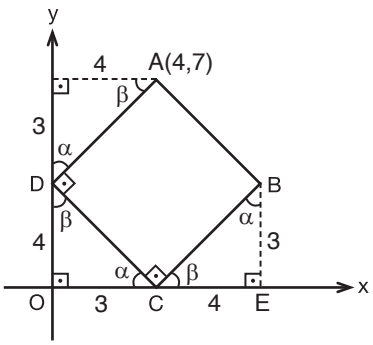
$\frac{a}{2}+\frac{a}{3}=1 \Rightarrow 5a=6$

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

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

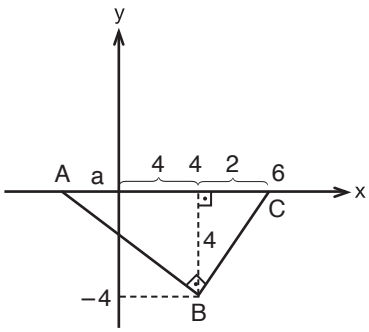
Cevap: B

8.



Cevap: C

9.



• ABC üçgeninde öklid

$4^2 = 2.(a + 4)$

$a = 4$

$\Rightarrow |AC| = 4 + 6 = 10$ br

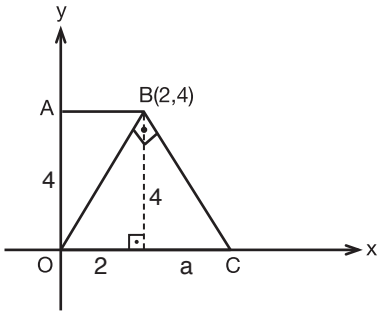
Cevap: D

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

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

Cevap: A

11.



• $\widehat{BOC}$ de öklid

$4^2 = 2.a$

$\Rightarrow a = 8$

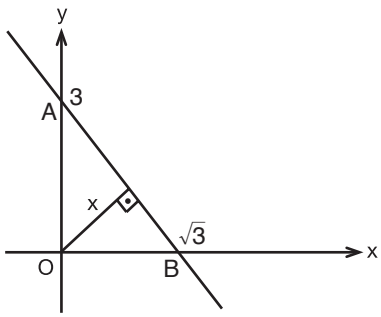
• $A(AOCB) = \frac{|OC| + |AB|}{2} . |AO|$

$= \frac{10 + 2}{2} .4$

$= 24\ br^2$

Cevap: D

12.



• $\widehat{AOB}$ de pisagor

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

$|AB| = 2\sqrt{3}$ br

• Öklid'den $|AO|.|OB| = |AB|.x$

$3.\sqrt{3} = 2\sqrt{3}x$

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

Cevap: E