

ÇÖZÜMLER

1.

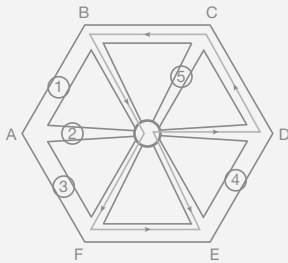
$$\frac{2^{-2} + 3^{-1}}{(0,2)^{-1} + 2} \cdot 0,12 = ?$$

$$\frac{\frac{1}{4} + \frac{1}{3}}{5 + 2} \cdot \frac{12}{100} = \frac{7}{12} \cdot \frac{1}{7} \cdot \frac{12}{100} = 0,01$$

2.

$$\frac{18^5}{3^8 + 5 \cdot 3^5} = \frac{3^{10} \cdot 2^5}{3^5(3^3 + 5)} = \frac{3^5 \cdot 2^5}{2^5} = 3^5$$

3.



Kullanmadığı yol sayısı en az 5'tir.

4.

$$\frac{(n-1)![(n+1) \cdot (n-8)]}{n \cdot (n-1)!} = 3$$

$$n^2 + n - 8 = 3n$$

$$n^2 - 2n - 8 = 0$$

$$(n-4) \cdot (n+2) = 0$$

$$n = 4$$

5.

$$\frac{x}{x+1} + \frac{2y}{y-1} = a + 19$$

$$\frac{1}{x+1} - \frac{2}{y-1} = a - 19$$

$$+$$

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

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

6.

$$a^2 + b^2 = 10$$

$$a \cdot b = 3$$

$$a + b = k \text{ olsun.}$$

$$\underbrace{a^2 + b^2}_{10} + \underbrace{2ab}_6 = k^2$$

$$k = 4$$

$$a^3 + b^3 = \underbrace{(a+b)}_4 \cdot \underbrace{(a^2 + b^2 - ab)}_{\frac{10}{3}}$$

$$= 28$$

7.

Sayı x olsun.

$$x + 17 = a^2$$

$$\sqrt{x-12} = b$$

$$x - 12 = b^2$$

$$a^2 - 17 = b^2 + 12$$

$$a^2 - b^2 = 29$$

$$(a-b) \cdot (a+b) = 1 \cdot 29$$

$$a = 15$$

$$b = 14$$

$$x + 17 = 225$$

$$x = 208$$

$$2 + 0 + 8 = 10$$

8.

$$|x-1| + |x-2| = \frac{20}{x}$$

$$x \geq 2 \text{ için } x-1+x-2 = \frac{20}{x}$$

$$2x^2 - 3x - 20 = 0 \Rightarrow \boxed{x=4}$$

$$1 \leq x < 2 \text{ için } x-1-x+2 = \frac{20}{x}$$

$$1 = \frac{20}{x} \Rightarrow x = 20 \notin [1,2)x$$

$$x < 1 \text{ için } -x+1-x+2 = \frac{20}{x}$$

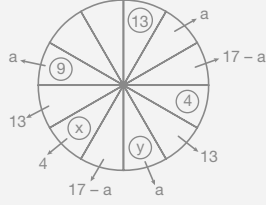
$$2x^2 - 3x + 20 = 0 \Rightarrow \Delta < 0 \text{ reel kök yok}$$

9.

$$x = 4$$

$$y = a = 9$$

$$x \cdot y = 4 \cdot 9 = 36 \text{ bulunur.}$$



10.

$$1120 \rightarrow 2011 \quad 1220 \rightarrow 2012$$

$$1320 \rightarrow 2013 \quad 1420 \rightarrow 2014$$

$$1520 \rightarrow 2015 \quad 1620 \rightarrow 2016$$

11.

$$\frac{94 \cdot 2 + 90 \cdot 4 + 70 \cdot 10 + 60 \cdot 8}{24} = 72$$

94	90	70	60
2	4	10	8

12.

$$\frac{x}{0,3} = y \Rightarrow 10x = 3y$$

$$\Rightarrow x = \frac{3y}{10}$$

$$3 < x < 6$$

$$3 < \frac{3y}{10} < 6 \quad \underbrace{11, 12, 13, \dots, 19}_9$$

$$10 < y < 20$$

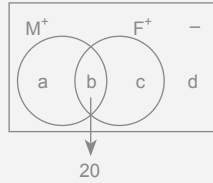
13.

$$a + b + c + d = 42$$

$$a + c + d = 22$$

$$c + d = 16 \Rightarrow a = 6$$

$$a + d = 12 \Rightarrow c = 10$$



14.

$$4 \text{ kesim} \rightarrow 20 \text{ dk}$$

$$9 \text{ kesim} \rightarrow ?$$

$$? = 45$$

15.

$$\frac{T}{4a} \quad \frac{G}{5b}$$

$$5b + a = 330 \quad \dots \text{ I}$$

$$4a + b = 180 \quad \dots \text{ II}$$

$$\text{I ve II'den} \quad a = 30$$

$$b = 60$$

$$4a + 5b = 120 + 300 = 420$$

16.

89 paket

$$\text{Pazartesi} \quad 89 - 25 = 64$$

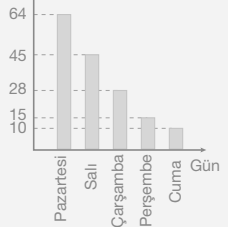
$$\text{Salı} \quad 64 - 19 = 45$$

$$\text{Çarşamba} \quad 45 - 17 = 28$$

$$\text{Perşembe} \quad 28 - 13 = 15$$

$$\text{Cuma} \quad 15 - 5 = 10$$

Kahve Sayısı



17.

Pistin uzunluğu x olsun.

$$\frac{x}{x} = \frac{12(V_1 + V_2)}{30(V_1 - V_2)} \Rightarrow \frac{V_1}{V_2} = \frac{7}{3}$$

18.

$$1. \text{ tur} \rightarrow 3 \cdot 2 = 6$$

$$2. \text{ tur} \rightarrow 3 \cdot 4 = 12$$

$$3. \text{ tur} \rightarrow 0 \cdot 4 - 3 \cdot 5 = -15$$

$$4. \text{ tur} \rightarrow 6 \cdot 5 = 30$$

$$5. \text{ tur} \rightarrow 7 \cdot 6 = 42$$

$$6 + 12 - 15 + 30 + 42 = 75$$

19.

Kitabın tamamı $8x$ sayfa olsun.

$$3x'ini \text{ günde } 15 \text{ sayfa okuyarak } \frac{3x}{15} \text{ günde,}$$

$$5x'ini \text{ günde } 20 \text{ sayfa okuyarak } \frac{5x}{20} \text{ günde okur.}$$

$$\frac{3x}{15} + \frac{5x}{20} = 27$$

$$x = 60$$

$$8x = 480 \text{ sayfa}$$

20. Pantolon x lira olsun.

$$(420 + x) \cdot \frac{80}{100} = 500$$

$$x = 205$$

$$205 \cdot \frac{20}{100} = 41$$

21. x lira, n kardeş için;

$$\frac{x}{n+1} = 120$$

$$100n + 180 = 120n + 120$$

$$n = 3$$

$$x = 120 \cdot 4$$

$$x = 480$$

22. I. $86 \div 14 \neq Z$ (-)
II. $152 \div 8 = 19$ (+)
III. $364 \div 13 = 28$ (+)

23. $A = (-6) + (-5) + \dots + (4)$
 $= -11$
 $B = (2) + (1) + \dots + (-5)$
 $= -12$
 $A - B = -11 - (-12)$
 $= 1$

24. $A \cap B = \{a, b, c\}$

Harf	Harf	Rk.	Rk.
⏟		⏟	
(3)		(5)	
(2)		(2)	
$3 \cdot 10 = 30$			

- 25.
- | | | | |
|----|----|-----|----------|
| 1. | 2. | | |
| 16 | 16 | ... | 4 farklı |
| 20 | 20 | ... | 4 farklı |
| 26 | 26 | ... | 1 |
| 10 | 10 | ... | 1 |
- $$\left. \begin{array}{l} \\ \\ \\ \\ \end{array} \right\} \frac{10}{36} = \frac{5}{18}$$

26. $F(x+3) + F(2x-1) = x^2 + x + 2$
 $x = 3$ iken $F(6) + F(5) = 14$
 $x = 4$ iken $F(7) + F(7) = 22$
 $F(7) = 11$
 $F(7) + F(6) + F(5) = 11 + 14 = 25$

27. $(x-2)^6$ açılımında x^4 lü terim : $\binom{6}{2} \cdot x^4 \cdot (-2)^2 = 60x^4$
 $(3x+2)^5$ açılımında x^4 lü terim : $\binom{5}{1} \cdot (3x)^4 \cdot (2)^1 = 810x^4$
 $60x^4 + 810x^4 = 870 \cdot x^4$

28. $13 + 15 + 20 + 24 + 17 = 89$
- | | | |
|------|----|--------------------------------|
| 89 | 2 | |
| - 88 | 44 | ⇒ ortadaki terim 45. terimdir. |
| 1 | | |
- | | | | |
|--|---|---|----------------------------|
| $\underbrace{111 \dots 1}_{13 \text{ tane}}$ | $\underbrace{22 \dots 2}_{15 \text{ tane}}$ | $\underbrace{33 \dots 3}_{20 \text{ tane}}$ | $\underbrace{44 \dots}_{}$ |
| $45 = (28 + 17). \text{ terim}$ | | | |
45. terim 3 olur.

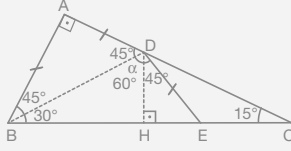
29. $T(r, k) \rightarrow r$ pozitif
- | | | |
|---------------------------------|---------|-----------------------------|
| $-\frac{b}{2a} > 0 \Rightarrow$ | $a > 0$ | $(0, c) \rightarrow (0, -)$ |
| \Rightarrow | $b < 0$ | $\Rightarrow c < 0$ |
- I. $a \cdot b < 0$ (+)
II. $a \cdot c < 0$ (+)
III. $b \cdot c > 0$ (+)

30.

[BD] çizilirse BAD ikizkenar dik üçgen olur.

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

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



[DH] \perp [BC] çizilirse $m(\widehat{BDH}) = 60^\circ$ olur.

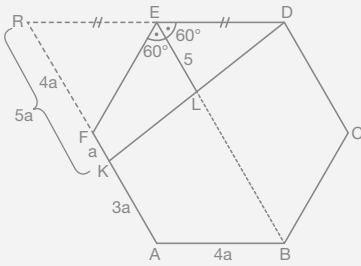
$$|BD| = |AB| \cdot \sqrt{2} = 2|DH| \text{ ve } |AB| = |DE| \text{ ise}$$

$$\sqrt{2}|DE| = 2|DH| \text{ ise } |DE| = |DH|\sqrt{2} \text{ olur.}$$

Buradan $m(\widehat{EDH}) = 45^\circ$ olur.

$$\alpha = 45^\circ + 60^\circ + 45^\circ = 150^\circ \text{ bulunur.}$$

31.



|AF| = 4a olsun. [BL] çizilirse B, L, E doğrusal olur. BARE paralel kenar çizilirse, |AF| = |FR| = 4a ve |RE| = |ED|

[EL], DRK üçgeninde orta taban olur.

$$\frac{5a}{2} = 5 \Rightarrow a = 2 \Rightarrow \text{Ç}(ABCDEF) = 48 \text{ cm} \text{ bulunur.}$$

32.

$$|AD| = 25 \text{ cm}$$

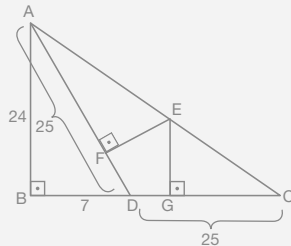
$$|BD| = 7 \text{ cm} \text{ ise}$$

$$|AB| = 24 \text{ cm}$$

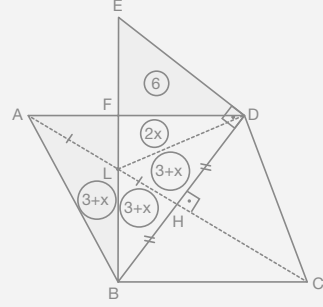
(7, 24, 25 üçgeni) olur.

$$|AD| = |DC| \text{ olduğundan}$$

$$|EF| + |EG| = 24 \text{ cm} \text{ bulunur.}$$



33.



[AC] çizilirse

[AC] \perp [BD] ve

$$|DH| = |HB| \text{ olur.}$$

[BE] \cap [AC] = {L} için

$$A(\widehat{DFL}) = 2x \text{ olsun.}$$

$$A(\widehat{DEL}) = A(\widehat{DBL}) = 6 + 2x \text{ ve}$$

$$A(\widehat{DLH}) = A(\widehat{BLH}) = 3 + x \text{ olur.}$$

$$A(\widehat{ABD}) = A(\widehat{DBC}) = 12 + 4x \text{ ise}$$

$$A(\widehat{BHC}) = A(\widehat{DHC}) = A(\widehat{DHA}) = A(\widehat{BHA}) = 6 + 2x \text{ olur.}$$

Bu durumda $A(\widehat{ABL}) = 3 + x$ olur ki $|AL| = |LH|$ bulunur.

[AC] // [ED] olduğundan $\widehat{BLH} \sim \widehat{BED}$ ise

$$|ED| = 2|LH| = 2|AL| \text{ olur. Dolayısıyla } |DF| = 2|AF| \text{ olur.}$$

$$\text{Buradan } A(\widehat{BDF}) = 2 \cdot A(\widehat{ABF}) = 12 \text{ cm}^2$$

$$A(ABCD) = 36 \text{ cm}^2 \text{ bulunur.}$$

34.

[CE] açılırtay olduğundan

$$|EF| = |ED| = \sqrt{2} \text{ cm} \text{ olur.}$$

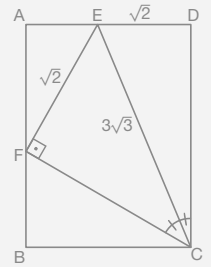
$$|AB| = |CD| \text{ ve}$$

$$|CD|^2 + (\sqrt{2})^2 = (3\sqrt{3})^2 \text{ ise}$$

$$|AB|^2 + 2 = 27 \text{ ise}$$

$$|AB|^2 = 25$$

$$|AB| = 5 \text{ cm} \text{ bulunur.}$$



35.

Dairelerin kesişim noktaları

K ve L olsun.

Bu durumda [AK] \perp [KB]

ve [AL] \perp [LB] olur.

$$|AK| = m \text{ ve } |BK| = n \text{ olsun.}$$

$$m^2 + n^2 = 64 \text{ (Pisagor bağıntısı)}$$

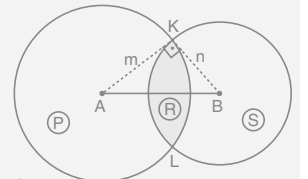
$$P, R, S \text{ buldukları bölgelerin alanı ise } P + R + S = 40 \pi \text{ cm}^2$$

$$P + R = \pi m^2$$

$$S + R = \pi n^2$$

$$\left. \begin{array}{l} P + R = \pi m^2 \\ S + R = \pi n^2 \end{array} \right\} \text{ ise } P + R + S + R = 64 \pi \text{ cm}^2 \text{ olur.}$$

$$P + R + S = 40 \pi \text{ cm}^2 \text{ ise } R = 24 \pi \text{ cm}^2 \text{ bulunur.}$$



36.

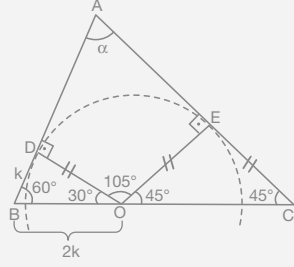
$|OE| = |OD|$ (Yarıçap),
 $|BD| = k$ ise $|OB| = 2k$
 Merkezden teğete çizilen
 yarıçap dik olduğundan
 $|OD| \perp |AB|$ ve
 $|OE| \perp |AC|$ olur.

Buradan

$m(\widehat{DOB}) = 30^\circ$, $m(\widehat{EOC}) = 45^\circ$ ve $m(\widehat{DOE}) = 105^\circ$ olur.

ADOE dörtgeninde $\alpha + 90^\circ + 105^\circ + 90^\circ = 360^\circ$ ise

$\alpha = 75^\circ$ bulunur.



37.

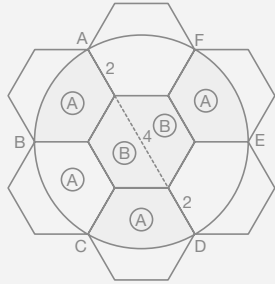
[AD] çizilirse istenen alan
 bir yarım daire ile bir yarım
 altgenin alanları toplamı olur.

Taralı alan :

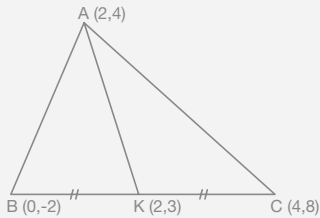
$$= \frac{\pi \cdot 4^2}{2} + \frac{2^2 \cdot \sqrt{3}}{4} \cdot 3$$

$$= 8\pi + 3\sqrt{3}$$

$$= 3\left(\frac{8\pi}{3} + \sqrt{3}\right) br^2 \text{ bulunur.}$$



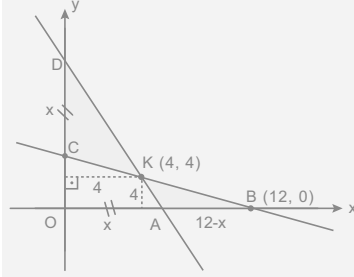
38.



K noktası [BC]'nin orta noktası olduğundan koordinatları (2, 3)

olur. $|AK| = \sqrt{(2-2)^2 + (3-4)^2} = 1$ br bulunur.

39.



$|CD| = x$ dersek

$|AB| = 12 - x$ olur.

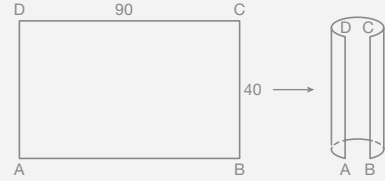
$$\left. \begin{aligned} A(\widehat{KCD}) &= \frac{x \cdot 4}{2} \\ A(\widehat{KAB}) &= \frac{(12-x) \cdot 4}{2} \end{aligned} \right\} \text{ise}$$

Taralı alanlar toplamı :

$$A(\widehat{KCD}) + A(\widehat{KAB}) = \frac{x \cdot 4}{2} + \frac{(12-x) \cdot 4}{2} = 24 \text{ br}^2 \text{ bulunur.}$$

sonuç yayınları

40.



$A(ABCD) = 40 \cdot |DC| = 3600$ ise $|DC| = 90$ cm olur.

Dikdörtgenin [AB] kenarı silindirin taban çevresini oluşturduğuna göre, r; silindirin taban yarıçapı dersek $2\pi r = 90$ ise $r = \frac{45}{\pi}$ cm bulunur.

CEVAP ANAHTARI

- | | | | | | | | | | | | | | | | | | | | |
|----|---|----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|-----|---|
| 1. | A | 5. | D | 9. | E | 13. | D | 17. | C | 21. | B | 25. | D | 29. | E | 33. | D | 37. | A |
| 2. | C | 6. | D | 10. | B | 14. | C | 18. | C | 22. | D | 26. | C | 30. | E | 34. | C | 38. | A |
| 3. | B | 7. | C | 11. | C | 15. | B | 19. | D | 23. | B | 27. | D | 31. | C | 35. | E | 39. | C |
| 4. | B | 8. | C | 12. | E | 16. | B | 20. | C | 24. | C | 28. | C | 32. | D | 36. | A | 40. | B |