ÇÖZÜMLER

1.
$$\frac{1+\frac{1}{3}}{3-\frac{1}{3}} - \frac{1}{7}\cdot\left(3-\frac{1}{5}\right)$$

$$= \frac{\frac{4}{3}}{\frac{8}{3}} - \frac{1}{7}\cdot\frac{14}{5}$$

$$= \frac{\cancel{4}\times\cancel{3}}{\cancel{3}\times\cancel{8}} - \frac{1}{\cancel{7}}\cdot\frac{\overset{2}{\cancel{14}}}{5}$$

$$= \frac{1}{2} - \frac{2}{5} = \frac{5-4}{10}$$

$$= \frac{1}{10}$$

Cevap: B

2.
$$\frac{\frac{5,8}{0,29} - \frac{0,65}{0,13}}{\frac{1,5}{0,75}} = \frac{\frac{580}{29} - \frac{65}{13}}{\frac{150}{75}}$$

$$= \frac{20-5}{2} = \frac{15}{2} = 7,5$$

Cevap: E

3.
$$\frac{3\sqrt{27}+\sqrt{3}}{2\sqrt{75}}$$

$$= \frac{3\sqrt{9.3}+\sqrt{3}}{2\sqrt{25.3}}$$

$$= \frac{9\sqrt{3}+\sqrt{3}}{10\sqrt{3}} = \frac{10\sqrt{3}}{10\sqrt{3}}$$

$$= 1$$

Cevap: C

4.
$$\begin{aligned} a+b+c &= 10 \\ -1/\ b+c+d &= -6 \\ a+d &= 12 \end{aligned}$$

$$\begin{aligned} a+\cancel{b}+\cancel{c} &= 10 \\ -\cancel{b}-\cancel{c}-\cancel{d} &= 6 \\ +\quad a+\cancel{d} &= 12 \end{aligned}$$

$$\begin{aligned} 2a &= 28 \\ a &= 14 \end{aligned}$$

Cevap: A

5.
$$\begin{aligned} a^2-b^2+6(a+b) &= 33 \\ (a-b)(a+b)+6(a+b) &= 33 \\ \underbrace{(a+b)}_{3}(a-b+6) &= 33 \\ a-b+6 &= 11 \\ a-b &= 5 \end{aligned}$$

$$\begin{aligned} -/\ a+b &= 3 \\ a-b &= 5 \end{aligned}$$

$$\begin{aligned} a+b &= 3 \\ +\quad -a+b &= -5 \end{aligned}$$

$$\begin{aligned} 2b &= -2 \\ b &= -1 \end{aligned}$$

Cevap: A

6.
$$\sqrt{(b-a)^2} = ?$$

$$|b-a| = ?$$

$$(1+\sqrt{3}) - (1-\sqrt{3})$$

$$\cancel{1}+\sqrt{3}-\cancel{1}+\sqrt{3}$$

$$= 2\sqrt{3}$$

Cevap: D

Diğer Sayfaya Geçiniz.

7. $\frac{15^{x+1}}{3^{x-1}} = \frac{5^{x+1}.3^{x+1}}{3^{x-1}}$ → üsler aynıysa tabanlar çarpılır.

$= 5^{x+1}.3^{x+1-(x-1)}$

$= 5^{x+1}.3^{x+1-x+1}$

$= 5^{x+1}.3^2$

$= 5^x.5.9$

$= m.45$

Cevap: D

8. $x < 0 < y$

$\underbrace{|x-y|}_{-} - \underbrace{|y-x|}_{+} - \underbrace{|x|}_{-} - \underbrace{|y|}_{+}$

$= -x + y - y + x + x - y$

$= x - y$ bulunur.

Cevap: C

9. $\sqrt{x^2-7x+7+\underbrace{\sqrt{x^2+4x+4}}_{(x+2)^2}}$

$= \sqrt{x^2-7x+7+\sqrt{(x+2)^2}}$

$= \sqrt{x^2-7x+7+x+2}$

$= \sqrt{x^2-6x+9} = \sqrt{(x-3)^2} = \underbrace{|x-3|}_{-}$

x –3

x –3

$-2 < x < 3$ olduğundan

$= 3 - x$ olarak çıkar.

Cevap: E

10. $x = \{6, 8, \ldots, 124\}$

$y = \{18, 21, \ldots, 150\}$

$xy = \{18, 24, \ldots 120\}$

$\text{Terim sayısı} = \frac{\text{Son Terim} - \text{İlk Terim}}{\text{Artış Miktarı}} + 1$

$= \frac{120-18}{6} + 1 = \frac{102}{6} + 1$

$= 17 + 1 = 18$

Cevap: D

11. $\frac{a}{c} = \frac{\frac{1}{10}}{\frac{4}{5}} = \frac{1}{8}$ $\Rightarrow a = k$

$c = 8k$

$k.8k = \frac{25}{18}$

$|c| = 8k = 8.\frac{5}{12}$

$k^2 = \frac{25}{8.2.9}$

$= \frac{10}{3}$

$k = \frac{5}{4.3} = \frac{5}{12}$

Cevap: D

12. $f(-4) = x+1 = -4 + 1 = -3$

$-f(2) = -(2x-3) = -2x + 3 = -2.2 + 3$

$= 4 + 3 = -1$

$f(0) = x^2 - 4 = 0^2 - 4 = -4$

$-3 - 1 - 4 = -8$

Cevap: A

13. $A = \{a, b, c, d, e, f\}$

3 elemanlı → $\binom{6}{3} = \frac{6.5.4}{3.2.1} = 20$

4 elemanlı → $\binom{6}{4} = \frac{6.5}{2} = 15$

5 elemanlı → $\binom{6}{5} = 6$

6 elemanlı → $\binom{6}{6} = 1$

$\Rightarrow 20 + 15 + 6 + 1 = 42$ tane

Cevap: D

14. $f(x-2) = 2x + 9$

$x \rightarrow a + 2$ diyelim.

$f(a + 2 - 2) = 2(a + 2) + 9$

$f(a) = 2a + 4 + 9 = 2a + 13$

$f^{-1}(a) = \frac{a-13}{2}$

$f^{-1}(a) = -3$

$\frac{a-13}{2} = -3$

$a - 13 = -6$

$\boxed{a = 7}$

Cevap: D

15. $P(x) = (x-1)(x-3)(x-5)$

$$\begin{array}{r|l} P(x+3) & x+4 \\ \hline - & B(x) \\ \hline K & \end{array}$$

$x + 4 = 0$

$x = -4$

$P(x + 3)$ için $x = -4$ yazalım.

$P(-4 + 3) = P(-1) = K$'dir.

$P(-1) = (-1 - 1)(-1 - 3)(-1 - 5) = K$

$(-2)(-4).(-6) = K$

$-48 = K$ olur.

Cevap: B

16. $a, b, c \in Z^+$

$b < c < a$

$a.\underbrace{(c-1)}_{3} = 21.b$

$\downarrow \quad \downarrow$

$7 \quad 1$

$c - 1 = 3$

$c = 4$

$\min(a + b + c) = 7 + 1 + 4 = 12$ bulunur.

Cevap: D

17.

$$\begin{array}{rrr} & A & B & C \\ - & 1 & C & A \\ \hline & 9 & 2 & \end{array} \qquad \begin{array}{rrr} & 2 & 3 & 4 \\ - & 1 & 4 & 2 \\ \hline & 9 & 2 & \end{array}$$

$A = 2 \quad C = 4 \quad$ ve $\quad B = 3$ olur.

$A.B.C = 2.3.4 = 24$ bulunur.

Cevap: C

18. $\dfrac{ab^3 + a^2b}{ab + b - a - 1} : \dfrac{a + b^2}{b - 1}$

$= \dfrac{ab(b^2 + a)}{b(a+1) - (a+1)} \cdot \dfrac{b-1}{a + b^2}$

$= \dfrac{ab}{(a+1)(b-1)} \cdot \dfrac{b-1}{1} = \dfrac{ab}{a+1}$ bulunur.

Cevap: D

19. $y < x < z$

$x = a + b \;, \quad y = b + c \quad$ ve $\quad z = a + c$

$y < x \qquad\qquad x < z$

$b + c < a + b \qquad a + b < a + c$

$c < a \qquad\qquad b < c$

$b < c < a$

Cevap: B

20. $x_1 + x_2 = -\dfrac{b}{a} = -\dfrac{[-(a+1)]}{1} = \boxed{a + 1 = k}$

$x_1.x_2 = \dfrac{c}{a} = \underbrace{5a - 9}_{1} = m$

$a + 1 = k \;\Rightarrow\; a = k - 1$

$5a - 9 = m \;\Rightarrow\; 5a = m + 9$

$a = \dfrac{m+9}{5}$

$k - 1 = \dfrac{m+9}{5}$

$k = \dfrac{m+9}{5} + 1 = \dfrac{m+9+5}{5} = \dfrac{m+14}{5}$

Cevap: D

21. $\dfrac{x-3}{4} = \dfrac{y+1}{3} = \dfrac{z-1}{5} = k$ olsun.

$x - 3 = 4k \;\Rightarrow\; x = 4k + 3$

$y + 1 = 3k \;\Rightarrow\; y = 3k - 1$

$z - 1 = 5k \;\Rightarrow\; z = 5k + 1$

$4k + 3 + 3k - 1 + 5k + 1 = 27$

$12k + 3 = 27$

$12k = 24$

$k = 2$

$x = 4k + 3 = 4.2 + 3 = 8 + 3 = 11$

Cevap: C

Diğer Sayfaya Geçiniz.

22. T(r, k) verilen parabolün denklemi

$y = a(x - 5)^2 + k$ ile bulunur.

$y = a(x - 2)^2 - 1$'dir. (0, –9) noktası yerine yazılırsa;

$-9 = a(0 - 2)^2 - 1$

$-9 = a.4 - 1$

$-8 = 4a$

$a = -2$ bulunur.

$y = -2(x - 2)^2 - 1$'dir. Yani,

$f(x) = -2x^2 - 9 + 8x$'den

$a = -2, \quad b = 8, \quad c = -9$'dur.

$4a + b - c = 4(-2) + 8 + 9 = -8 + 8 + 9 = 9$

Cevap: E

23. $\left(\frac{2}{3}\right)^{2(3x-1)} = \left(\frac{3}{2}\right)^{4(x-7)}$

$\left(\frac{2}{3}\right)^{6x-2} = \left(\frac{2}{3}\right)^{-4x+28}$

$6x - 2 = -4x + 28$

$10x = 30$

$\boxed{x = 3}$

Cevap: A

24. $\frac{(n-1).(n-2)!}{(n-2)!} + \frac{(n+1).n!}{n!} = 24$

$n - 1 + n + 1 = 24$

$2n = 24$

$n = 12$

Cevap: C

25. $a = \frac{b}{2} = \frac{c}{3} = k$

$a = k \quad b = 2k \quad c = 3k$

$a + b + c = 48$

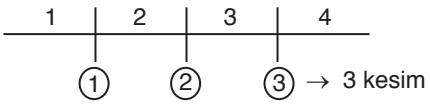
$k + 2k + 3k = 48$

$6k = 48 \Rightarrow K = 8$

$c = 3k = 24$

Cevap: D

26.



kesim sayısı

3 → 12

6 → ?

$^2\cancel{6}. 12 = \cancel{3}. ?$

24 dk

Cevap: D

27.

Anne	Kız
A	50 – A
↓ 10 yıl	↓ 10 yıl

$A + 10 = 4(60 - A)$

$A + 10 = 240 - 4A$

$5A = 230$

$A = 46$

Cevap: D

28. $100x \rightarrow 140x$

$140x = 56$ cm

$x = \frac{4}{10}$

$100x = ?$

$100.\frac{4}{10} = 40$

Cevap: B

29.

$\cancel{a_1 = 2 . a_2}$

$\cancel{a_2 = 3 . a_3}$

$\vdots$

$\vdots$

$x \quad \cancel{a_{24}} = 25.a_{25}$

$a_1 = 25!.a_{25}$

$\frac{2}{25!} = a_{25}$

Cevap: D

30. 1. satır → 1 sayı

2. satır → 3 sayı

3. satır → 5 sayı

⋮ ⋮

n satır → (2n – 1) sayı

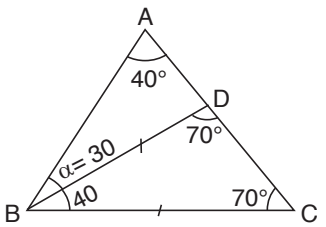
$1 + 3 + 5 + 7 + \ldots\ldots\ldots\ldots + (2n - 1) = 441$

$n^2 = 441$

$n = 21$ bulunur.

Cevap: C

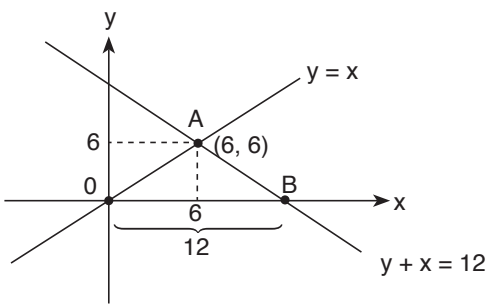
31.



$\alpha = 30°$ bulunur.

Cevap: C

32.



$x + y = 12$ $x = 0$ için $y = 12$ (0, 12)

$y = 0$ için $x = 12$ (12, 0)

B noktasının koordinatları A noktasının koordinatlarını bulmak için iki doğrunun kesişiminden

$y = x$

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

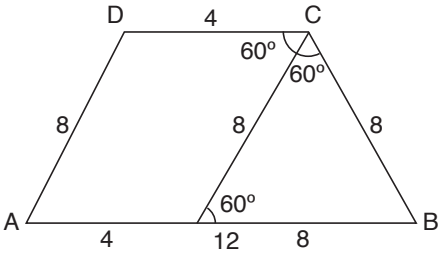
$y = 6$

$x = 6$ A(6,6)dır.

$A(\widehat{AOB}) = \frac{12.6}{2} = 36\ cm^2$ bulunur.

Cevap: C

33.

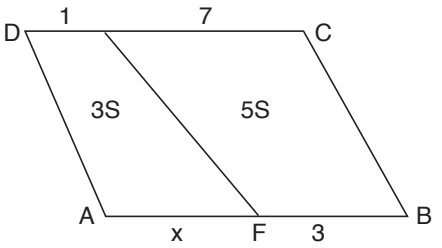


$\alpha = 60° + 60°$

$\alpha = 120°$

Cevap: C

34.



5S → 10 = 7 + 3

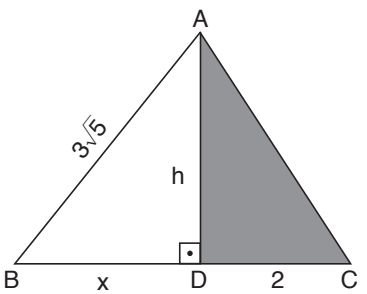
3S → 6 gelmeli

$1 + x = 6$

$x = 5$

Cevap: E

35.



ABC üçgeninden

$6 = \frac{h.2}{2} \Rightarrow h = 6$ cm

ABD pisagordan,

$x^2 + 6^2 = (3\sqrt{5})^2$

$x^2 = 45 - 36 = 9$

$x = 3$

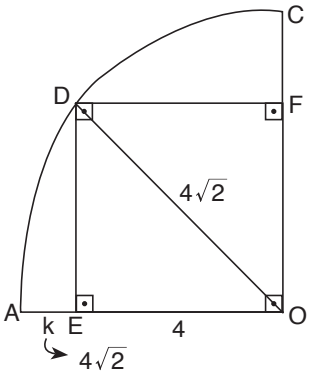
O halde

$A(\widehat{ABC}) = \frac{5.6}{2} = 15\ cm^2$'dir.

Cevap: B

Diğer Sayfaya Geçiniz.

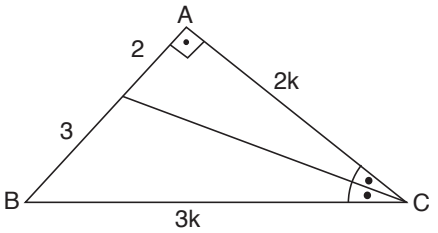
36.



$K = 4\sqrt{2} - 4$ olur.

Cevap: D

37.



$(2k)^2 + 5^2 = (3k)^2$

$4k^2 + 25 = 9k^2$

$25 = 5k^2$

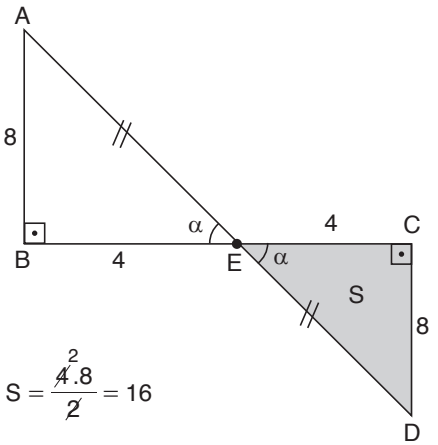
$5 = k^2$

$\boxed{k = \sqrt{5}}$

$|BC| = 3k = 3\sqrt{5}$

Cevap: C

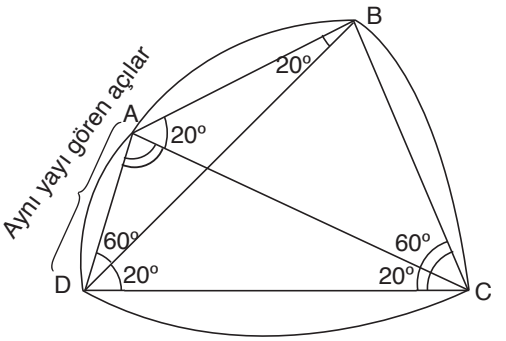
38.



$S = \frac{\cancel{4}^{2}.8}{\cancel{2}} = 16$

Cevap: B

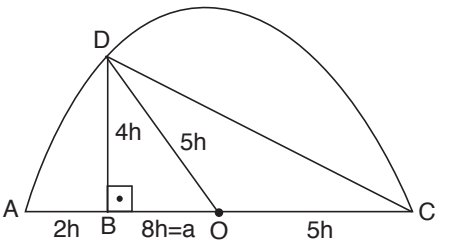
39.



$|AC| = |DC|$

Cevap: A

40.



$(5h)^2 = (4h)^2 + a^2$

3–4–5 üçgeninden

$a = 3h$

$x + a = r$ olduğundan

$x + 3h = 5h$

$x = 2h$

Cevap: B