ÇÖZÜMLER

1. $$\frac{\frac{2}{3}-\frac{\frac{5}{4}}{5}}{\frac{1}{2}-\frac{2}{\frac{3}{2}}} = \frac{\frac{2}{3}-\frac{1}{4}}{\frac{1}{2}-\frac{4}{3}} = \frac{\frac{8-3}{12}}{\frac{3-8}{6}}$$

$$= \frac{5}{12}\cdot\frac{6}{-5} = -\frac{1}{2}$$

Cevap: A

2. $$a + \frac{1}{b+\frac{1}{c}} = 2 + \frac{2}{7} = 2 + \frac{1}{\frac{7}{2}}$$

$$= 2 + \frac{1}{3+\frac{1}{2}} \Rightarrow \begin{array}{l} a = 2 \\ b = 3 \\ c = 2 \end{array}$$

$$\Rightarrow a + b + c = 7$$

Cevap: C

3. $$\frac{0,75}{0,025} - \left(\frac{0,12}{0,3} + \frac{0,15}{0,5}\right) : \frac{0,05}{1,5}$$

$$\frac{0,750}{0,025} - \left(\frac{0,12}{0,30} + \frac{0,15}{0,50}\right) : \frac{0,05}{1,50}$$

$$\frac{750}{25} - \left(\frac{12}{30} + \frac{15}{50}\right) : \frac{5}{150}$$

$$30 - \left(\frac{4}{10} + \frac{3}{10}\right)\cdot\frac{150}{5}$$

$$30 - \frac{7}{10}\cdot 30 = 30 - 7.3 = 9$$

Cevap: B

4. $a = \frac{103}{100} \searrow -3$

$b = \frac{173}{170} \searrow -3 \Rightarrow c < b < a$

$c = \frac{258}{255} \searrow -3$

Cevap: E

5. $$\frac{1}{2}+\frac{2}{3}+\frac{3}{2}+\frac{4}{3}+\frac{5}{2}+\frac{6}{3}+\ldots+\frac{23}{2}+\frac{24}{3} =$$

$$\frac{1}{2}+\frac{3}{2}+\ldots+\frac{23}{2}+\frac{2}{3}+\frac{4}{3}+\ldots+\frac{24}{3}$$

$$\frac{1+3+\ldots+23}{2}+\frac{2+4+\ldots+24}{3}$$

$$\frac{12^2}{2}+\frac{12.13}{3} = 72 + 52 = 124$$

Cevap: B

6. $$-4 \,/\, \frac{2x}{3}-\frac{y}{4} = 1$$

$$3 \,/\, \frac{3x}{2}-\frac{y}{3} = 5$$

$$\frac{9x}{2}-\frac{8x}{3} = 15 - 4$$

$$\frac{27x-16x}{6} = 11$$

$$\frac{11x}{6} = \frac{11}{1} \Rightarrow x = 6$$

Cevap: C

7. $$2a + 5b = 18$$

$$+\ 2/\quad c - a = 3 \Rightarrow -\frac{1}{2} - a = 3$$

$$2c + 5b = 24 \qquad \boxed{a = \frac{-7}{2}}$$

$$+\quad b - 2c = 6 \Rightarrow 5 - 2c = 6$$

$$6b = 30 \qquad 2c = -1$$

$$\boxed{b = 5} \qquad \boxed{c = \frac{-1}{2}}$$

$$\Rightarrow a + b + c = -\frac{7}{2} + 5 - \frac{1}{2} = 5 - 4 = 1$$

Cevap: D

Diğer Sayfaya Geçiniz.

8. $\underset{3}{a} + \underset{4}{b} = 7$

$\underset{4}{b} + \underset{6}{c} = 10$

$\Rightarrow \quad \underset{3}{a} < \underset{4}{b} < \underset{6}{c}$

$\Rightarrow$ a.b.c = 3.4.6 = 72

Cevap: E

9. $(2\,3\,1)_4 = (6\,3)_x$

$4^2 \quad 4^0 \quad x^0$

$4^1 \quad x^1$

$2.4^2 + 3.4^1 + 1.4^0 = 6.x^1 + 3.x^0$

$32 + 12 + 1 = 6x + 3$

$45 = 6x + 3$

$42 = 6x$

$7 = x$

Cevap: B

10. $\dfrac{n! + (n-2)!}{(n-1)!} = \dfrac{21}{4}$

$\dfrac{n.(n-1)(n-2)! + (n-2)!}{(n-1)(n-2)!} = \dfrac{21}{4}$

$\dfrac{\cancel{(n-2)!}(n^2 - n + 1)}{\cancel{(n-2)!}.(n-1)} = \dfrac{21}{4}$

$\dfrac{n^2 - n + 1}{n-1} = \dfrac{21}{4} \quad \Rightarrow \quad n = 5$

Cevap: D

11. $(2 - x)\left(x + \dfrac{1}{3}\right) \geq 0$

$-\dfrac{1}{3} \qquad 2$

$- \bullet //// + //// \bullet -$

ÇK: $\left[-\dfrac{1}{3}, 2\right]$

$\Rightarrow \quad \min(x) = -\dfrac{1}{3}$

Cevap: A

12. $\sqrt{16a^2} + \sqrt{9b^2} - |4a - 3b|$

$|4a| + |3b| - |4a - 3b|$

$- \quad + \quad -$

$-\cancel{4a} + \cancel{3b} + \cancel{4a} - \cancel{3b} = 0$

Cevap: D

13. • $3^{2a}.3^{-1} = 5 \quad \Rightarrow \quad 3^{2a} = 5.3 = 15$

• $(81)^a = 3^{4a} = (3^{2a})^2 = 15^2 = 225$

Cevap: A

14. $\left(\dfrac{3}{5}\right)^{-2} : \left(-\dfrac{2}{3}\right)^2 + (-4)^{-1}$

$\left(\dfrac{5}{3}\right)^2 : \dfrac{4}{9} - \dfrac{1}{4}$

$\dfrac{25}{\cancel{9}} \cdot \dfrac{\cancel{9}}{4} - \dfrac{1}{4} = \dfrac{25}{4} - \dfrac{1}{4}$

$= \dfrac{24}{4} = 6$

Cevap: A

15. $\sqrt[x]{24 + \sqrt{11 - \sqrt[3]{6 + \sqrt[5]{32}}}} = 3$

$\sqrt[x]{24 + \sqrt{11 - \sqrt[3]{6 + 2}}} = 3$

$\sqrt[x]{24 + \sqrt{11 - \sqrt[3]{8}}} = 3$

$\sqrt[x]{24 + \sqrt{11 - 2}} = 3$

$\sqrt[x]{24 + 3} = 3$

$\sqrt[x]{27} = 3 \quad \Rightarrow \quad x = 3$

Cevap: B

16. $\dfrac{5^8 - 1}{(5^4 + 1)(5^2 + 1)} = \dfrac{(5^4 - 1)\cancel{(5^4 + 1)}}{\cancel{(5^4 + 1)}(5^2 + 1)}$

$\dfrac{(5^2 - 1)\cancel{(5^2 + 1)}}{\cancel{5^2 + 1}} = 25 - 1 = 24$

Cevap: E

17. $\dfrac{(1-a)^3.(a+1)^2}{\left(1+\frac{1}{a}\right)^2.\left(1-\frac{1}{a}\right)^3}$

$\dfrac{(1-a)^3.(a+1)^2}{\frac{(a+1)^2}{a^2}\cdot\frac{(a-1)^3}{a^3}} = \dfrac{-1}{\frac{1}{a^5}} = -a^5$

Cevap: A

18. $\dfrac{2.x}{2.a} = \dfrac{-5y}{-5b} = \dfrac{3z}{3c} = \dfrac{6}{7}$

$\dfrac{\overbrace{2x-5y+3z}^{72}}{\underbrace{2a-5b+3c}_{24}} = \dfrac{6}{7}$

$\dfrac{\overset{12}{\cancel{72}}}{24+3c} = \dfrac{\cancel{6}}{7}$

$84 = 24 + 3c$

$60 = 3c$

$c = 20$

Cevap: C

19. $\dfrac{3x-y}{2} = z$

$3y + z = 3x$

$3y + \dfrac{3x-y}{2} = 3x$

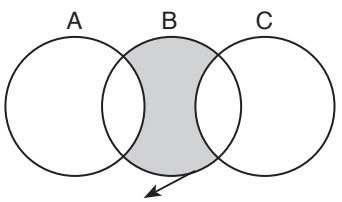
$6y + 3x - y = 6x$

$5y = 3x$

$\dfrac{5}{3} = \dfrac{x}{y}$ bulunur.

Cevap: A

20.



$(B - A) \cap (B - C)$

Cevap: E

21. $|x+1|.|3x-3| = 9$

$|x+1|.\ 3\ |x-1| = 9$

$|(x+1).(x-1)| = 3$

$|x^2-1| = 3$

$x^2 - 1 = 3$ ve $x^2 - 1 = -3$

$x^2 - 1 = 3$ ve $x^2 - 1 = -3$

$x^2 = 4$ $\quad x^2 = -2$ olamaz.

Cevap: C

22. $(gogof)(2) = g(gof(2))$

$f(2) = x + 1 = 2 + 1 = 3$ olduğundan

$\Rightarrow g(g(3))$

$g(3) = f(3) = 3 + 1 = 4$

$g(4) = g(x-1) + f(x+1) = g(3) + f(5)$

$= 4 + 5 + 1$

$= 10$ bulunur.

Cevap: B

23. $f(2x+1) = 4x^2 - x - 7$

$f(5) = 16 - 2 - 7 = 7$

$fof^{-1}of(5) = Iof(5) = f(5)$

$= 7$

Cevap: A

24. $\dfrac{x+B}{x^2+4x} = \dfrac{2}{\underset{x+4}{x}} + \dfrac{A}{\underset{x}{x+4}}$

$x + B = 2x + 8 + Ax$

$1.x + B = (A+2)x + 8$

$\Rightarrow A + 2 = 1 \Rightarrow A = -1$

$B = 8$

$\Rightarrow a + b = -1 + 8 = 7$

Cevap: D

Diğer Sayfaya Geçiniz.

25. $x_1^2.x_2 + x_2^2.x_1 = 12$

$x_1x_2(x_1 + x_2) = 12$

$4.(-a - 1) = 12$

$-a - 1 = 3$

$-a = 4$

$a = -4$

Cevap: B

26. $P(x) = (x^2 - 9)Q(x) + 2x$

$$\begin{array}{r|l} (x^2-9)Q(x)+2x & x+3 \\ \hline -\ (x^2-9).Q(x) & (x-3)Q(x)+2 \\ \hline 2x & \\ -\ 2x+6 & \\ \hline -6 & \end{array}$$

Cevap: E

27. $\sum_{k=3}^{12}(k-3) = \sum_{k=3-2}^{12-2}(k+2)(k+2-3)$

$\sum_{k=1}^{10}(k+2)(k-1) = \sum_{k=1}^{10} k^2+k-2$

$= \frac{\overset{5}{\cancel{10}}.11.\overset{7}{\cancel{21}}}{\cancel{6}} + \frac{10.11}{2} - 2.10$

$= 385 + 55 - 20$

$= 420$

Cevap: C

28. k = 1 $\quad \cancel{a_2} = \frac{1}{1}\cdot a_1$

k = 2 $\quad \cancel{a_3} = \frac{1}{2}\cdot \cancel{a_2}$

k = 3 $\quad a_4 = \frac{1}{3}\cdot \cancel{a_3}$

x $\quad a_4 = 1\cdot\frac{1}{2}\cdot\frac{1}{3}\cdot 3$

$a_4 = \frac{1}{2}$

Cevap: B

29. $P(5x - 1) = x^2 + 3x - 5$

$5x - 1 = 9$

$5x = 10$

$x = 2$

x yerine 2 yazalım.

$P(9) = 2^2 + 3 . 2 - 5$

$= 4 + 6 - 5$

$P(9) = 5$ bulunur.

Cevap: E

30.
$$\begin{array}{r} A\ 4\ B \\ +\ \ 4\ A\ B \\ \hline C\ B\ 4 \end{array}$$

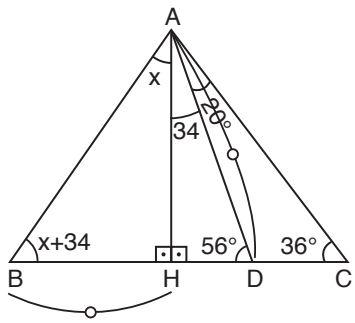
B = 7, A = 2, C = 6 olup

$$\begin{array}{r} 2\ 4\ 7 \\ +\ \ 4\ 2\ 7 \\ \hline 6\ 7\ 4 \end{array}$$

A.B.C = 2.7.6 = 84 olur.

Cevap: E

31.



$90 + x + 34 + x = 180$

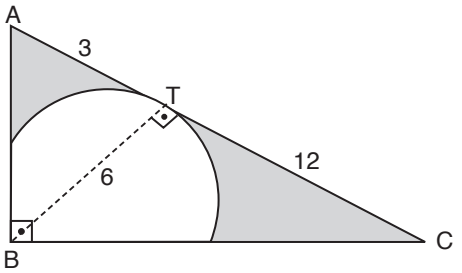
$2x = 180 - 124$

$2x = 56$

$x = 28$

Cevap: B

32.



$|BT|$ çizilirse yarıçap teğete dik olduğundan

$[BT] \perp [AC]$

$|BT|^2 = 3.12 = 36$

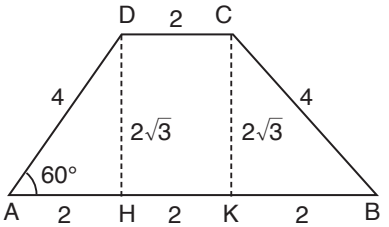
$|BT| = 6$ cm

Taralı Alan $= \frac{6.15}{2} - \frac{\pi.6^2}{4}$

$= 45 - 9\pi$ cm^2

Cevap: B

33.



Yamuklarda paralel olmayan kenarların ardışık açıları bütün olduğundan

$m(\widehat{ADC}) = 60°$

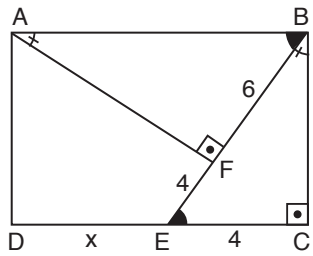
$|AH| = |HK| = |KB| = \frac{6-2}{2} = 2$ br

(30°, 60°, 90°) üçgeninden $|DH| = |KC| = 2\sqrt{3}$

A(ABCD) $= \frac{(6+2).2\sqrt{3}}{2} = 8\sqrt{3}$ br^2

Cevap: D

34.



$m(\widehat{BAF}) = m(\widehat{EBC})$

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

AFB üçgeni ile BCE üçgeni benzer üçgendir.

$\frac{|AB|}{BE} = \frac{|BF|}{|CE|}$

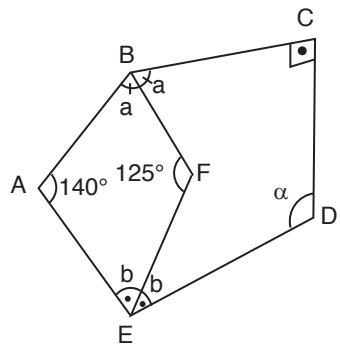
$\frac{|AB|}{6+4} = \frac{6}{4}$

$|AB| = \frac{60}{4} = 15$

$x + 4 = 15 \Rightarrow x = 11$ cm olur.

Cevap: C

35.



$140° + 125° + a + b = 360°$

$a + b = 95°$

ABCDE beşgeninin iç açılar toplam

$(n-2).180° = (5-2).180° = 540°$ olduğundan

$140° + 2(a + b) + 90° + \alpha = 540°$

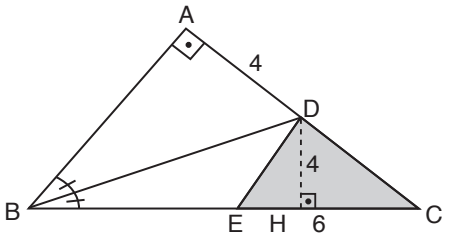
$140° + 190° + 90° + \alpha = 540°$

$\alpha = 120°$ bulunur

Cevap: D

Diğer Sayfaya Geçiniz.

36.



Açıortayın [AC] kenarını kestiği noktadan [BC] kenarına dik çizersek [BD] açıortay olduğundan açıortay üzerindeki herhangi bir noktadan açının kenarlarına çizilen dik uzunluklar eşittir.

$|AD| = |DH| = 4$ cm

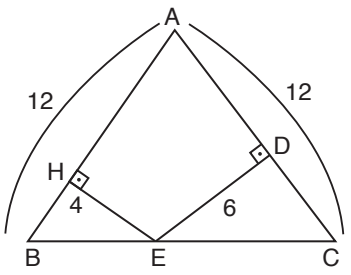
O halde

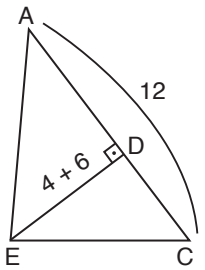
$$A(DEC) = \frac{|EC|.|DH|}{2} = \frac{6.4}{2}$$

$= 12\ cm^2$ bulunur.

Cevap: B

37.



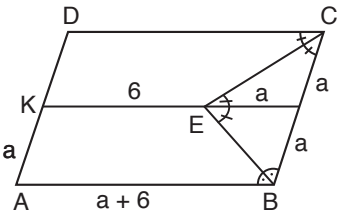


$$\Rightarrow \text{Alan} = \frac{12.10}{2}$$

$= 60$

Cevap: C

38.



$2(2a + a + 6) = 36$

$6a + 12 = 36$

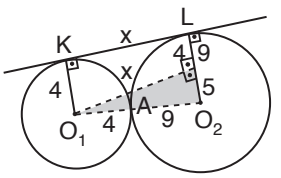
$6a = 24$

$a = 4$

$\Rightarrow |AK| = a = 4$

Cevap: C

39.

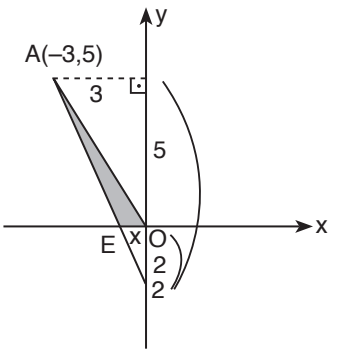


$x^2 + 5^2 = 13^2$

$x = 12$

Cevap: B

40.



$$\frac{2}{7} = \frac{x}{3}$$

$$x = \frac{6}{7}$$

$$\Rightarrow \text{Alan} = \frac{x.5}{2} = \frac{\frac{6}{7}\cdot 5}{2} = \frac{15}{7}$$

Cevap: A