

ÇÖZÜMLER

$$\begin{aligned}
 1. \quad & \left(\frac{4}{1-\frac{1}{2}} + \frac{1-\frac{1}{2}}{4} \right) : \frac{13}{16} \\
 & = \left(\frac{4}{\frac{1}{2}} + \frac{\frac{1}{2}}{4} \right) : \frac{13}{16} \\
 & = \left(8 + \frac{1}{8} \right) : \frac{13}{16} \\
 & = \frac{5}{8} \cdot \frac{2}{13}
 \end{aligned}$$

Cevap: A

$$\begin{aligned}
 2. \quad 3^{x-5} = 8 = \frac{3^x}{3^5} = 8 & \Rightarrow (3^x)^2 = (3^5 \cdot 8)^2 \\
 3^x = 4 & \quad 3^{2x} = 3^{10} \cdot 2^6 \\
 (3^y)^3 = 4^3 = 2^6 & \quad 2^{2x} = 3^{10} \cdot 3^{3y} \\
 3^{3y} = 2^6 & \quad 2x = 10 + 3y \\
 & \quad -10 = 3y - 2x
 \end{aligned}$$

bulunur.

Cevap: A

$$\begin{aligned}
 3. \quad & \frac{\sqrt{3}}{\sqrt{2}-\sqrt{3}} + \frac{\sqrt{2}}{\sqrt{3}-\sqrt{2}} \\
 & = \frac{\sqrt{3}}{\sqrt{2}-\sqrt{3}} - \frac{\sqrt{2}}{\sqrt{2}-\sqrt{3}} \\
 & = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{2}-\sqrt{3}} = \frac{-(\sqrt{2}-\sqrt{3})}{\sqrt{2}-\sqrt{3}} \\
 & = -1
 \end{aligned}$$

Cevap: E

$$\begin{aligned}
 4. \quad & \frac{7x-6}{x^2-x-6} = \frac{A}{x-3} + \frac{B}{x+2} \\
 & \frac{7x-6}{x^2-x-6} = \frac{Ax+2A+Bx-3B}{x^2-x-6}
 \end{aligned}$$

$$7x-6 = (A+B)x + 2A-3B$$

$$3/ \quad A+B=7$$

$$2A-3B=-6$$

$$3A+3B=21$$

$$+ \quad 2A-3B=-6$$

$$5A=15$$

$$A=3 \Rightarrow B=4$$

$$A \cdot B = 3 \cdot 4 = 12 \text{ bulunur.}$$

Cevap: D

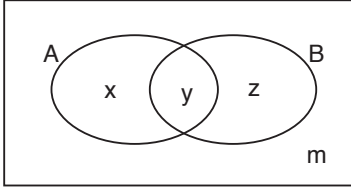
$$\begin{aligned}
 5. \quad & \frac{7 \cdot 10^{-4} \cdot 10^{37} + 5 \cdot 10^{-2} \cdot 10^{35}}{6 \cdot 10^{-3} \cdot 10^{36}} \\
 & = \frac{7 \cdot 10^{33} + 5 \cdot 10^{33}}{6 \cdot 10^{33}} \\
 & = \frac{12 \cdot 10^{33}}{6 \cdot 10^{33}} = 2 \text{ bulunur.}
 \end{aligned}$$

Cevap: B

$$\begin{aligned}
 6. \quad & \frac{3^{1002} + 3^{1001} + 3^{1000}}{3^{-1004} + 3^{-1003} + 3^{-1002}} \\
 & = \frac{3^{1000} (3^2 + 3^1 + 1)}{3^{-1004} (1 + 3^1 + 3^3)} \\
 & = 3^{1000+1004} = 3^{2004} \text{ bulunur.}
 \end{aligned}$$

Cevap: E

7. F



$$\begin{cases} m(A \cap B) = x = 8 \\ n(B \cap A) = z = 10 \end{cases} \quad y = 13$$

$$n(A) = x + y = 8 + 13 = 21$$

Cevap: E

$$8. \quad \begin{aligned} x^2 - y^2 &= 4^{16} = 2^{32} \\ x + y &= 2^{24} \\ (x - y)(x + y) &= 2^{32} \\ &\quad \underbrace{\qquad\qquad\qquad}_{2^{24}} \\ (x - y) &= \frac{2^{32}}{2^{24}} = 2^8 \end{aligned}$$

Cevap: D

$$9. \quad \begin{aligned} (\sqrt{x(x-5)+2})^2 &= (4)^2 \\ x(x-5)+2 &= 16 \\ x(x-5) &= 14 \\ \begin{array}{r} \downarrow \quad \downarrow \\ 7 \quad \quad 2 \end{array} & \\ x &= 7 \text{ bulunur.} \end{aligned}$$

Cevap: B

$$10. \quad \begin{aligned} \frac{x^2-4}{x+2} - \frac{2x^2-4x+2}{x-1} \\ = \frac{(x-2)(x+2)}{(x+2)} - \frac{(2x-2)(x-1)}{(x-1)} \\ = (x-2) - (2x-2) \\ = x-2-2x+2 \\ = -x \text{ bulunur.} \end{aligned}$$

Cevap: A

$$11. \quad \begin{aligned} x &= \frac{4f(x)+1}{2-f(x)} \\ 2x - xf(x) &= 4f(x) + 1 \\ 2x - 1 &= 4f(x) + xf(x) \\ 2x - 1 &= f(x)(4+x) \\ f(x) &= \frac{2x-1}{x+4} \\ f^{-1}(x) &= \frac{-4x-1}{x-2} \\ f^{-1}(3) &= \frac{-12-1}{3-2} = -13 \text{ bulunur.} \end{aligned}$$

Cevap: B

$$12. \quad P(x-2) = x^2 - 3x + m + 1$$

$$\begin{array}{r|l} P(x+1) & x+2 \\ - & \\ \hline & -4 \end{array}$$

Polinomda x yerine x + 3 yazalım.

$$P(x+3-2) = (x+3)^2 - 3(x+3) + m + 1$$

$$\begin{aligned} P(x+1) &= x^2 + 6x + 9 - 3x - 9 + M + 1 \\ &= x^2 + 3x + M + 1 \end{aligned}$$

Bölmede ise $x + 2 = 0$

$$x = -2 \text{ yazalım.}$$

$$(-2)^2 + 3(-2) + M + 1 = -4$$

$$4 - 6 + M + 1 = -4$$

$$M - 4 + 1 = -3 \text{ bulunur.}$$

Cevap: B

13. $f(x) = 2x - 6$
 $(f \circ g)(x) = 0 - 4$
 $f(g(2)) = 2g(2) - 6 = g(2) - 4$
 $g(2) = 2$

Cevap: B

14. $x = 4$ için
 $P(2).P(5) = 16 - 16 + 20$
 $5.Q(5) = 20$
 $Q(5) = 4$

Cevap: D

15. $-1/ \quad 2x + 3y + 4z = 49$
 $4x + 3y + 2z = 95$
 $\hline -2x - 3y - 4z = -49$
 $+ \quad 4x + 3y + 2z = 95$
 $\hline 2x - 2z = 46$
 $2(x - z) = 46$
 $x - z = 23$ bulunur.

Cevap: C

16. $x < 0 \Rightarrow x - 4 < 0$
 $\frac{1}{x-4} < 0$ olduğundan
 $\frac{1}{x-4} < -\frac{1}{8}$
 $x - 4 > -8$
 $x > -8 + 4$
 $x > -4$
 $\text{Min}(x) = -3$ olur.

Cevap: D

17. $x = 32^3 \cdot 125^4$
 $x = (2^5)^3 \cdot (5^3)^4$
 $x = 2^{15} \cdot 5^{12}$
 $x = 2^3 \cdot 2^{12} \cdot 5^{12}$
 $x = 8 \cdot 10^{12}$
 x sayısı $1 + 12 = 13$ basamaklıdır.

Cevap: D

18. $K = x^2 \cdot y^3 \cdot z^4$, $L = x \cdot y^4 \cdot z^4$, $M = y^2 \cdot z^4$
 $\frac{\text{OKEK}(K,L,M)}{\text{OBEB}(K,L,M)} = \frac{x^2 \cdot y^4 \cdot z^4}{y^2 \cdot z^2}$
 $= x^2 \cdot y^2 \cdot z^2$
 $= (x \cdot y \cdot z)^2$

Cevap: C

19. $3x = 5y = 15z = 15k$
 $x = 5k$, $y = 3k$ ve $z = k$
 $x + y = y \cdot z$
 $5k + 3k = 3k \cdot k$
 $8k = 3k^2$
 $k = \frac{8}{3}$

O halde $y + z = 3k + k = 4k$

$4 \cdot \frac{8}{3} = \frac{24}{3}$ bulunur.

Cevap: E

20. $\frac{(2n+1)!}{(2n-1)!} = 272$
 $\frac{(2n+1) \cdot 2n \cdot (2n-1)!}{(2n-1)!} = 272$

$(2n+1) \cdot 2n = 17 \cdot 16$

$2n = 16 \Rightarrow n = 8$ bulunur.

Cevap: C

$$\begin{aligned}
21. \quad & |x-1| < 3 \\
& -3 < x-1 < 3 \\
& -2 < x < 4 \\
& \underbrace{|x+3|}_{+} + \underbrace{|x-4|}_{-} + \underbrace{|x-5|}_{-} \\
& = x+3 - x+4 - x+5 \\
& = -x+12
\end{aligned}$$

Cevap: C

$$\begin{aligned}
22. \quad & x_1^2 \cdot x_2 + x_1 \cdot x_2^2 \\
& = x_1 \cdot x_2 \cdot (x_1 + x_2) \\
& = \frac{6}{1} \cdot \left(\frac{-4}{1}\right) = -24
\end{aligned}$$

Cevap: A

$$\begin{aligned}
23. \quad & A, B \text{ ve } C \text{ birer rakam olacağından } A \text{'nin en büyük değeri } A = 9 \\
& A = 2C - 1 \\
& 9 = 2C - 1 \Rightarrow C = 5 \\
& B = -5 = 4 \\
& \text{O halde} \\
& \text{Max}(A + B + C) = 9 + 5 + 4 = 18
\end{aligned}$$

Cevap: C

$$\begin{aligned}
24. \quad & x = -1 \text{ için} \\
& 0 = -a + 1 + 1 \\
& a = 2 \text{ olur.} \\
& (x+1) \cdot P(x+3) = 2x^3 + x^2 + 1
\end{aligned}$$

$$\begin{array}{r|l}
2x^3 + x^2 + 1 & x+1 \\
- 2x^3 + 2x^2 & 2x^2 - x + 1 \\
\hline
-x^2 + 1 & \\
+ -(x^2 + x) & \\
\hline
x+1 & \\
- x+1 & \\
\hline
0 &
\end{array}$$

$$\begin{aligned}
P(x+3) &= 2x^2 - x + 1 \\
x &= -1 \text{ için} \\
P(2) &= 2 + 1 + 1 = 4 \text{ bulunur.}
\end{aligned}$$

Cevap: E

$$\begin{aligned}
25. \quad & f(3) = x^2 + 1 = 3^2 + 1 = 10 \\
& f(0) = x - 2 = 0 - 2 = -2 \\
& f(2) = 2x - 4 = 4 - 4 = 0
\end{aligned}$$

O halde

$$\begin{aligned}
\frac{f(3) - f(0)}{f(2) + 2} &= \frac{10 - (-2)}{0 + 2} \\
&= \frac{12}{2} = 6
\end{aligned}$$

Cevap: C

$$26. \quad \underbrace{300 - 299}_1 + \underbrace{298 - 297}_1 + \dots + \underbrace{2 - 1}_1$$

Terim sayısı 300 tane yalnız işlemle 150 tane 1 elde edilir.

$$150 \cdot 1 = 150 \text{ bulunur.}$$

Cevap: C

$$27. |x - 8| = 8 - x \Rightarrow x - 8 \leq 0 \\ x \leq 8 \text{ dir.}$$

$$|3x - 9| = 3x - 9 \Rightarrow 3x - 9 \geq 0 \\ 3x \geq 9 \\ x \geq 3$$

$$3 \leq x \leq 8$$

x'in alabileceği değerler

$$3, 4, 5, 6, 7, 8$$

$$\Sigma x = 3 + 4 + 5 + 6 + 7 + 8 \\ = 33 \text{ bulunur.}$$

Cevap: E

$$28. \begin{array}{r} x \cdot y - z = 45 \\ -1/ \quad x \cdot z - y = 9 \end{array}$$

$$xy - z - xz + y = 36$$

$$\underbrace{x(y-z)}_3 + \underbrace{y-z}_3 = 36$$

$$3x = 33 \Rightarrow x = 11$$

Cevap: D

$$29. \begin{array}{r} KLM \\ - LK3 \\ \hline M78 \end{array}$$

$M - 3 = 8 \Rightarrow M = 11$ yani $M = 1$ olur. Yandan ondalık almış.

$$1 - K = 7 \text{ olabilmesi için}$$

$$11 - K = 7 \Rightarrow K = 4$$

yine yandan ondalık almış.

$$3 - L = 1 \Rightarrow L = 2 \text{ olur.}$$

$$421$$

$$\begin{array}{r} - 243 \\ \hline 178 \end{array}$$

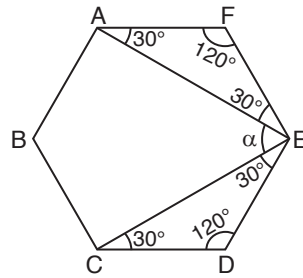
$$\text{O halde } K + L + M = 4 + 2 + 1 \\ = 7 \text{ bulunur.}$$

Cevap: C

$$30. (B - A) - C$$

Cevap: D

31.



Düzgün altıgenin bir iç açısı: 120° dir.

$$m(\widehat{AFE}) = m(\widehat{CDE}) = 120^\circ$$

$$\alpha + 30 + 30 = 120$$

$$\alpha = 60^\circ$$

Cevap: D

32. Temel benzerlik kuralına göre,

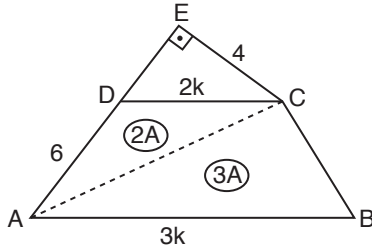
$$\frac{|AE|}{|EB|} = \frac{|AD|}{|DC|}$$

$$\frac{3}{4} = \frac{x}{6} \Rightarrow x = \frac{18}{4}$$

$$x = \frac{9}{2} \text{ cm}$$

Cevap: B

33.



$$3|DC| = 2|AB|$$

$$|DC| = 2k, \quad |AB| = 3k$$

$$A(\widehat{ADC}) = 2A, \quad A(\widehat{ABC}) = 3A$$

$$A(\widehat{ADC}) = \frac{|AD| \cdot |EC|}{2} \Rightarrow 2A = \frac{6 \cdot 4}{2}$$

$$A = 6$$

$$A(ABCD) = 5A = 5 \cdot 6 = 30$$

Cevap: A

34. Uzunlukları eşit olan krişlere merkezden çizilen dikmelerin uzunlukları da birbirine eşittir.

$$|AB| = |DC| \Rightarrow |OK| = |OL|$$

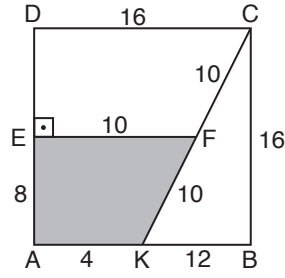
$$|OK| = |OL| \Rightarrow 7x - 3 = 5x + 9$$

$$2x = 12$$

$$x = 6 \text{ bulunur.}$$

Cevap: D

35.



KBC dik üçgeninde

$$|BC|^2 + |KB|^2 = |KC|^2$$

$$|BC|^2 + 12^2 = 20^2$$

$$|BC|^2 = 400 - 144 = 256$$

$$|BC| = 16$$

$$|AK| = 16 - 12 = 4 \text{ br}$$

AKCD yamuğunda EF orta taban olduğundan

$$|EF| = \frac{|DC| + |AK|}{2} = \frac{16 + 4}{2} = 10 \text{ br}$$

$$|EA| = \frac{|AD|}{2} = \frac{16}{2} = 8 \text{ br}$$

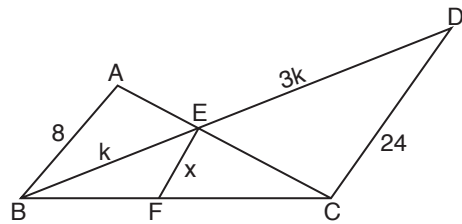
$$\text{Alan}(AKFE) = \frac{|EF| + |AK|}{2} \cdot |AE|$$

$$= \frac{10 + 4}{2} \cdot 8$$

$$= 7 \cdot 8 = 56 \text{ br}^2$$

Cevap: B

36.



AEB ve CED üçgenleri benzer olup benzerlik oranı

$$\frac{8}{24} = \frac{1}{3} \text{ tür.}$$

$$|BE| = k \text{ alınırsa } |ED| = 3k \text{ olur.}$$

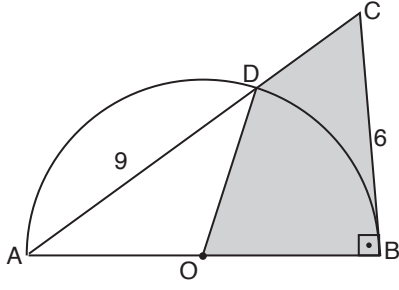
BEF ve BDC üçgenlerin benzerliğinden

$$\frac{|BE|}{|BD|} = \frac{|EF|}{|DC|} \Rightarrow \frac{k}{4k} = \frac{x}{24}$$

$$\Rightarrow x = 6 \text{ cm'dir.}$$

Cevap: B

37.



$$6^2 = |CD| \cdot (|CD| + 9)$$

$$|CD| = 3$$

$$|DB|^2 = |CD| \cdot |DA|$$

$$|DB|^2 = 3 \cdot 9$$

$$\sqrt{|DB|^2} = \sqrt{27}$$

$$|DB| = 3\sqrt{3}$$

$$\text{Taralı Alan} = A(\widehat{ODB}) + A(\widehat{BDC})$$

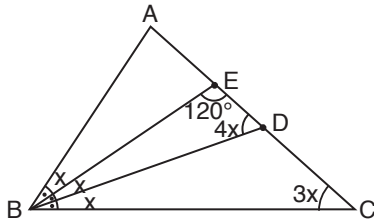
$$= \frac{(3\sqrt{3})^2 \cdot \sqrt{3}}{4} + \frac{(3\sqrt{3}) \cdot 3}{2}$$

$$= \frac{27\sqrt{3}}{4} + \frac{9\sqrt{3}}{2}$$

$$= \frac{27\sqrt{3}}{4} + \frac{18\sqrt{3}}{4}$$

$$= \frac{45\sqrt{3}}{4}$$

38.



EBD üçgeninden

$$x + 120 + 4x = 180^\circ$$

$$5x = 60$$

$$x = 12$$

$$3x + 3x + m(\widehat{BAC}) = 180^\circ$$

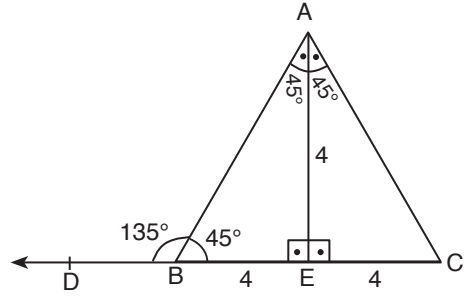
$$6x + m(\widehat{BAC}) = 180^\circ$$

$$72 + m(\widehat{BAC}) = 180^\circ$$

$$m(\widehat{BAC}) = 108^\circ$$

Cevap: E 40.

39.



(\widehat{BAC}) iki tane dik ikizkenar üçgen barındırır.

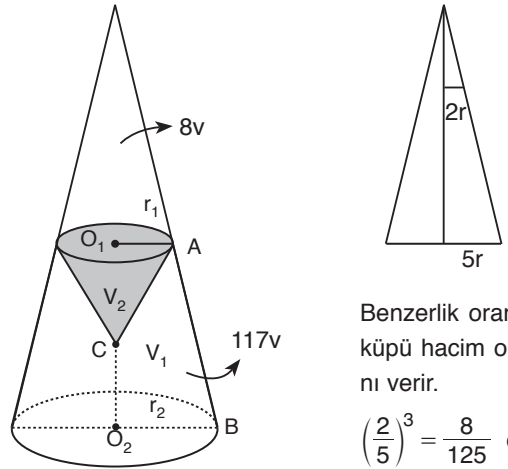
$$|BE| = |EC| = 4 \text{ olur.}$$

$$\text{Alan}(\widehat{ABC}) = \frac{8 \cdot 4}{2} = 16 \text{ bulunur.}$$

Cevap: B

TASARI EĞİTİM YAYINLARI

Cevap: E 40.



Benzerlik oranının küpü hacim oranını verir.

$$\left(\frac{2}{5}\right)^3 = \frac{8}{125} \text{ olur.}$$

$$V_1 = 117v - 8v = 109v$$

$$V_2 = 8v \quad \frac{V_1}{V_2} = \frac{109v}{8v} = \frac{109}{8}$$

Cevap: D

Cevap: E