ÇÖZÜMLER

1. $\left(\frac{3}{10}\right)^{-1} - \frac{1}{\frac{3}{10}+\frac{1}{\left(\frac{2}{10}\right)^{-1}}} = \frac{10}{3} - \frac{1}{\frac{3}{10}+\frac{2}{10}}$

$= \frac{10}{3} - \frac{1}{\frac{5}{10}} = \frac{10}{3} - \frac{10}{5} = \frac{50-30}{15}$

$= \frac{20}{15} = \frac{4}{3}$

Cevap: D

2. $\frac{-a^3.-a^{-5}.a^8}{a^{-2}.-a^{-4}.a^{-6}} = \frac{+a^6}{-a^{-12}} = -a^{18}$

Cevap: D

3. $\frac{(5\sqrt{3})^2-(3\sqrt{5})^2}{(3\sqrt{10})^2-(\sqrt{10})^2} = \frac{25.3-9.5}{9.10-10}$

$= \frac{75-45}{90-10} = \frac{30}{80} = \frac{3}{8}$

Cevap: C

4. $\frac{4.10^{-2}.10^6 - 2.10^{-1}.10^5}{2.10^{-1}.10^{-2}}$

$\frac{4.10^4 - 2.10^4}{2.10^{-3}} = \frac{\cancel{2}.10^4}{\cancel{2}.10^{-3}} = 10^7$

Cevap: B

5. $2015 + \frac{3}{5} - 2014 - \frac{2}{5} + 2016 + \frac{4}{5}$

$2015 - 2014 + 2016 + \frac{3}{5} - \frac{2}{5} + \frac{4}{5}$

$2017 + \frac{5}{5} = 2018$

Cevap: B

6. $\sqrt{\frac{2(3+\sqrt{5})}{2}} - \sqrt{\frac{2(3-\sqrt{5})}{2}}$

$\frac{\sqrt{6+2\sqrt{5}}}{\sqrt{2}} - \frac{\sqrt{6-2\sqrt{5}}}{\sqrt{2}} = \frac{\sqrt{5}+1-(\sqrt{5}-1)}{\sqrt{2}}$

$= \frac{\cancel{\sqrt{5}}+1-\cancel{\sqrt{5}}+5}{\sqrt{2}}$

$= \frac{2}{\sqrt{2}} = \sqrt{2}$

Cevap: C

7. $a = 2k \quad b = 3k \quad c = 4k$

$3\underset{2k}{a} + 25 - 4\underset{4k}{c} = -12$

$6k + 6k - 16k = -12$

$-k = -12$

$k = 3$

$\Rightarrow \frac{\cancel{2}.\cancel{2k}.3k}{\cancel{4k}} = 3k^3 = 9$

Cevap: E

8. $\sqrt[4]{2\sqrt[3]{4^2\sqrt{8}}} = \sqrt[24]{8.4^2.2^6}$

$= \sqrt[24]{2^3.2^4.2^6}$

$= \sqrt[24]{2^{13}}$

$= 2^{\frac{13}{24}}$

Cevap: A

9. $A + 4 = 3m - 1 + 4 = 5n + 1 + 4 = 7k + 3 + 4$

$A + 4 = 3m + 3 = 5n + 5 = 7k + 7$

Cevap: B

Diğer Sayfaya Geçiniz.

10. $\dfrac{a^2}{\sqrt[3]{a}} = \dfrac{2}{2^{\frac{2}{3}}}$

$\dfrac{a^2}{a^{\frac{1}{3}}} = 2^{\frac{-2}{3}} \Rightarrow a^{2-\frac{1}{3}} = 2^{-\frac{2}{3}}$

$a^{\frac{5}{3}} = 2^{-\frac{2}{3}}$

$a^{\frac{5}{3}\cdot\frac{3}{5}} = 2^{\frac{-2}{3}\cdot\frac{3}{5}}$

$a = 2^{-\frac{2}{5}}$

Cevap: E

11. $a + b + c = 6 \qquad (a + b = c^2)$

$a^2 + c = 6$

$c(c + 1) = 6 \Rightarrow c = 2$

$\Rightarrow a + b = c^2$

$a + b = 2^2 = 4$

$\Rightarrow (a + b)^2 = 4^2 = 16$

Cevap: E

12. $x.y = 30$

$-1.-30$

$\Rightarrow \min(x + y) = (-1) + (-30) = -31$

Cevap: D

13. • $2a + \dfrac{b}{17} = 13$

• $5a = c \Rightarrow a = 1$ ve $c = 5$

$\Rightarrow 2.1 + \dfrac{b}{17} = 13 \Rightarrow \dfrac{b}{17} = 11$

$b = 17.11$

$b = 187$

$\max(c + b) = 5 + 187$

$= 192$

Cevap: E

14. • $2^m = 5^n \Rightarrow 2^{\frac{m}{n}} = 5$

$8^{\frac{m}{n}} = 125$

• $5^n = 2^m \Rightarrow 5^{\frac{n}{m}} = 2$

$25^{\frac{n}{m}} = 4$

$\Rightarrow 8^{\frac{m}{n}} + 25^{\frac{n}{m}} = 125 + 4 = 129$

Cevap: B

15.
$$\begin{array}{rl} & x + y + a = 70 \\ - & \quad c + y = 23 \\ \hline & x - c + a = 47 \end{array}$$

$11 + a = 47 \Rightarrow a = 36$

$a - b = 36 - b = 6$

$b = 30$

Cevap: C

16. $a_6 = \dfrac{13}{11}$

$a_7 = \dfrac{15}{13} \Rightarrow \dfrac{\cancel{13}}{11}\cdot\dfrac{\cancel{15}}{\cancel{13}}\cdot\dfrac{\cancel{17}}{\cancel{15}}\cdot\dfrac{19}{\cancel{17}} = \dfrac{19}{11}$

$a_8 = \dfrac{17}{15}$

$a_9 = \dfrac{19}{17}$

Cevap: D

17. $\dfrac{(n+2)(n+1)! - (n+1)!}{n.(n-1)!}$

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

$= (n + 1)^2$

Cevap: A

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

Cevap: C

19. • $f(x+1) = 2.3^{x+1+1} - 2$

$f(x+1) = 2.3^{x+2} - 2$

• $f(x) = 2.3^{x+1} - 2$

$f(x) + 2 = 2.3^{x+1}$

• $f(x+1) = \boxed{2.3^{x+1}}.3 - 2$

$f(x+1) = 3.\big(f(x)+2\big) - 2$

$= 3f(x) + 4$

Cevap: B

20. $f(5) = 2.5 - 1 = 9$

$f(6) = 2.6 + 1 = 13$

$f(7) = 7^2 = 49$

$9 + 13 - 49 = -27$

Cevap: C

21. $f(x+3) = x^2 + 6x + 9 + 6$

$f(x+3) = (x+3)^2 + 6$

$f(\sqrt{5}) = (\sqrt{5})^2 + 6 = 11$

Cevap: B

22. $P(x+2) \overset{1}{\Rightarrow} p(3) = 0$

$\Rightarrow P(3) = (3+1)(3+2)(3+3)(3-4) = 0$

$\Rightarrow 3 - k = 0$

$k = 3$

Cevap: D

23. $A = \{12, 15, 18, \ldots, 99\} \rightarrow \frac{99-12}{3} + 1 = 30$

$B = \{40, 44, 48, \ldots, 148\} \rightarrow \frac{148-40}{4} + 1 = 28$

$A \cap B = \{48, 60, \ldots, 96\} \rightarrow \frac{96-48}{12} + 1 = 5$

$\Rightarrow S(A \cup B) = S(A) + S(B) - S(A \cap B)$

$= 30 + 28 - 5$

$= 53$

Cevap: C

24. $x_1 + x_2 = -\frac{(-16)}{2} = 8$

$x_1 = x_2 \Rightarrow x_1 + x_1 = 8$

$2x_1 = 8 \Rightarrow x_1 = 4$

$\Rightarrow 2.4^2 - 16.4 + m = 0$

$32 - 64 + m = 0$

$m = 32$

Cevap: B

25. $5 \equiv -1 \pmod 6$

$6 \equiv 0 \pmod 6$

$7 \equiv 1 \pmod 6$

$\Rightarrow 5^{21} + 6^{60} + 7^{91} \equiv x \pmod 6$

$(-1)^{21} + 0^{60} + 1^{91} \equiv x \pmod 6$

$-1 + 0 + 1 \equiv x \pmod 6$

$x = 0$

Cevap: B

26. • $a^2.b < 0 \Rightarrow \boxed{b < 0}$

• $a - b < 0 \Rightarrow a < b \Rightarrow \boxed{a < 0}$

$-\quad -$

• $a \;.\; c \;<\; 0 \Rightarrow \boxed{c > 0}$

$+\quad -\quad +$

$\Rightarrow a^2 \;.\; b \;.\; c < 0$

$+\quad -\quad +$

Cevap: B

Diğer Sayfaya Geçiniz.

27. $(156)_m = (230)_6$

$1.m^2 + 5.m^1 + 6.m^0 = 2.6^2 + 3.6^1 + 0.6^0$

$m^2 + 5m + 6 = 72 + 18$

$m^2 + 5m - 84 = 0$

$(m + 12)(m - 7) = 0$

$m = -12 \quad m = 7$

$m > 0$ olacağından $m = 7$ olur.

Cevap: A

28. $|x - 1| + |2 - 2x| = 6$

$|x - 1| + 2|1 - x| = 6$

$3|x - 1| = 6$

$|x - 1| = 2$

$x - 1 = 2$ ve $x - 1 = -2$

$x = 3 \qquad x = -1$

$\sum x = 3 - 1 = 2$

Cevap: E

29. $\frac{P(x+3)}{Q(x-1)} = 2x^2 - x - 5$

$x = 3$ yazılırsa

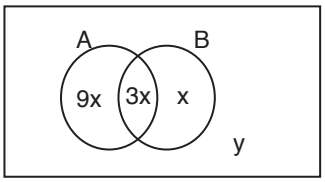
$\frac{P(6)}{P(2)} = 18 - 3 - 5$

$\frac{P(6)}{2} = 10$

$P(6) = 20$ bulunur.

Cevap: B

30.



$s(A \cap B) = 3x$

$s[(A \cup B)'] = y$ olsun

$s(A) = 4.s(A \cap B) \Rightarrow$

$s(A) = 4.3x = 12x$

$3s(B) = 4.s(A \cap B) \qquad s(B) = 4x$

$s(A) = s(A - B) + s(A \cap B)$

$12x = s(A - B) + 3x$

$s(A - B) = 9x$

$s(B) = s(B - A) + s(A \cap B)$

$4x = s(B - A) + 3x$

$s(B - A) = x$

$x + y = 5$

$9x + y = 21$

$x = 2$ ve $y = 3$

Buna göre $s(A - B) = 9x = 18$ bulunur.

Cevap: E

31. $3x + y + 2z = 9$

$x + 2y + 3z = 7$

$2x + 3y + z = 14$

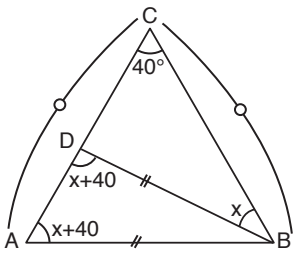
$6x + 6y + 6z = 30$

$6(x + y + z) = 30$

$x + y + z = 5$ olur.

Cevap: C

32.

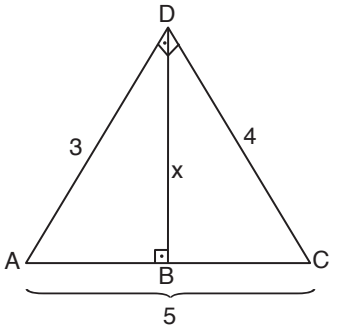


$\Rightarrow \quad x + 40° = 70°$

$x = 30°$

Cevap: D

33.

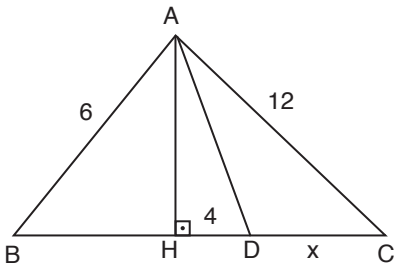


$\Rightarrow \quad 3.4 = 5.x$

$x = \frac{12}{5}$

Cevap: C

34.



$|BD| = |DC| \Rightarrow |BC| = 2x$ olur.

$2|BC|.|HD| = |AC|^2 - |AB|^2$

$2.2x.2 = 12^2 - 6^2$

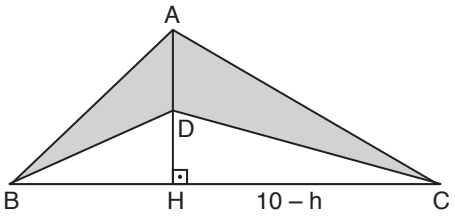
$16x = 144 - 36$

$16x = 108$

$x = \frac{108}{16} = \frac{27}{4}$ br

Cevap: C

35.



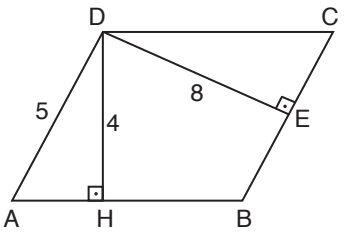
$A(ABD) = \frac{|AD|.|BH|}{2} = \frac{4.h}{2} = 2h$

$A(ADC) = \frac{|AD|.|HC|}{2} = \frac{4.(10-h)}{2} = 20 - 2h$

$A - (ABD) + A(ADC) = 2h + 20 - 2h = 20$ br^2

Cevap: E

36.



$|AD| = |BC| = 5$ cm

$A(ABCD) = |BC|.|DE| = 5.8 = 40$ cm^2

$A(ABCD) = |AB|.|DH|$

$40 = |AB|.4$

$|AB| = 10$ cm

$|AB| = |CD| = 10$ cm

Cevap: A

37.

2 cm^2	8 cm^2
6 cm^2	?

$\frac{2}{6} = \frac{8}{x}$

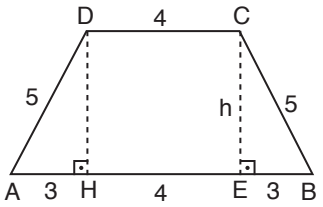
$2x = 48$

$x = 24$ cm^2 bulunur.

Cevap: E

Diğer Sayfaya Geçiniz.

38.



$|AH| = |BE| = \frac{a-c}{2} = \frac{10-4}{2} = 3$ br

BEC dik üçgeninde pisagordan

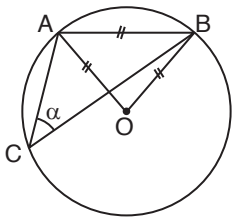
$5^2 = 3^2 + h^2 \Rightarrow h = 4$ br

o halde

$A(ABCD) = \left(\frac{10+4}{2}\right) \cdot 4 = 28$ br^2 dir.

Cevap: C

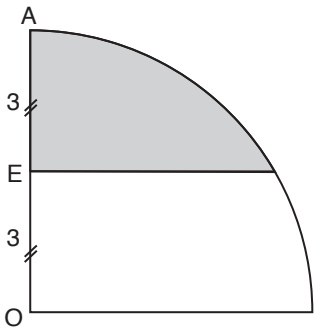
39.



$\Rightarrow m(\widehat{AB}) = 60° \Rightarrow \alpha = \frac{m(\widehat{AB})}{2} = \frac{60°}{2} = 30°$

Cevap: D

40.



Taralı Alan = (AOF daire dilim) – A(EOF)

$= \frac{\pi.6^2.60°}{360°} - \frac{3.3\sqrt{3}}{2}$

$= 6\pi - \frac{9\sqrt{3}}{2}$

Cevap: A