ÇÖZÜMLER

1. $\left(\sqrt{a} - \dfrac{1}{\sqrt{a}}\right)^2 = (-1)^2$

$a + \dfrac{1}{a} - 2 = 1 \qquad \Rightarrow \qquad a + \dfrac{1}{a} = 3$

✱ $\left(a + \dfrac{1}{a}\right)^2 = (3)^2$

$a^2 + \dfrac{1}{a^2} + 2 = 9 \qquad \Rightarrow \qquad a^2 + \dfrac{1}{a^2} = 7$ olur.

O halde

$\left(a - \dfrac{1}{a}\right)^2 = (x)^2$ olsun

$a^2 + \dfrac{1}{a^2} - 2 = x^2$

$7 - 2 = x^2 \Rightarrow x^2 = 5$

$x = \sqrt{5}$ bulunur.

Cevap: C

2. $= \dfrac{x(x-1)(x+1)}{(x-1)} \cdot \dfrac{y(xy-2)}{(xy-1-1)(xy-1+1)}$

$= x \cdot (x+1) \cdot \dfrac{y}{xy}$

$= x + 1$ bulunur.

Cevap: B

3. $a - 4 = (\sqrt{a})^2 - (2)^2 = (\sqrt{a} - 2)(\sqrt{a} + 2)$

$\dfrac{a-4}{\sqrt{a}+2} = \dfrac{a}{\sqrt{a}-2}$

$\dfrac{(\sqrt{a}-2)(\sqrt{a}+2)}{\sqrt{a}+2} = \dfrac{a}{\sqrt{a}-2} \Rightarrow (\sqrt{a}-2)^2 = a$

$a + 4 - 4\sqrt{a} = a$

$4 = 4\sqrt{a}$

$(1)^2 = (\sqrt{a})^2$

$1 = a$ bulunur.

Cevap: C

4. Büyük kartonun çevresi $4x$ } $4x - 4y = 32$
Küçük kartonun çevresi $4y$ $x - y = 8$

Büyük kartonun alanı = x^2 } $x^2 - y^2 = 120$
Küçük kartonun alanı = y^2

$\underbrace{(x-y)}_{8}(x+y) = 120$
     $x + y = 15$

Çevre uzunlukları toplamı $4(x + y) = 4 \cdot 15 = 60$

Cevap: E

5. $x + y = xy$ olduğuna göre,

$\underset{(x)}{\dfrac{x+2}{xy^2}} + \underset{(y)}{\dfrac{y+2}{x^2 y}} = \dfrac{x \cdot (x+2) + y(y+2)}{x^2 \cdot y^2}$

$= \dfrac{x^2 + 2x + y^2 + 2y}{(xy)^2}$

$= \dfrac{x^2 + y^2 + 2(x+y)}{(xy)^2} = \dfrac{x^2 + y^2 + 2xy}{(x+y)^2}$

$= \dfrac{(x+y)^2}{(x+y)^2} = 1$ bulunur.

Cevap: A

6. $\left(\dfrac{x^2 - 16}{x^2 + 8x + 16}\right) \cdot x + 4$

$= \dfrac{(x-4)(x+4)}{(x+4)(x+4)} \cdot x + 4$
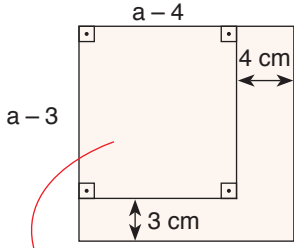
$= \dfrac{x-4}{x+4} \cdot x + 4 = \dfrac{x^2 - 4x}{x+4} + 4$

$= \dfrac{x^2 - 4x + 4x + 16}{x+4}$

$= \dfrac{x^2 + 16}{x+4}$ bulunur.

Cevap: E

7.

Alanı = $(a-4) \cdot (a-3) = a^2 - 7a + 12$ bulunur.

Cevap: C

8.
$$y + x^2 = z$$
$$+ \quad x - z^2 = y$$
$$\overline{\cancel{y} + x^2 + x - z^2 = z + \cancel{y}}$$
$$x^2 - z^2 = z - x$$
$$\cancel{(x-z)}(x+z) = -\cancel{(x-z)}$$
$$x + z = -1 \text{ bulunur.}$$

Cevap: C

9. $\dfrac{6a^2 + 3ab + 6a^2b + 3a}{2ab + b + 2a + 1} = \dfrac{3a\cancel{(2a+b+2ab+1)}}{\cancel{(2ab+b+2a+1)}}$

$= 3a$ bulunur.

Cevap: D

10.
$$\left(\frac{1}{x^3} + \frac{1}{x^2}\right) \cdot (x^2 - x + 1) = 28$$

$$\frac{x^2}{x^3} - \frac{x}{x^3} + \frac{1}{x^3} + \frac{x^2}{x^2} - \frac{x}{x^2} + \frac{1}{x^2} = 28$$

$$\cancel{\frac{1}{x}} - \cancel{\frac{1}{x^2}} + \frac{1}{x^3} + 1 - \cancel{\frac{1}{x}} + \cancel{\frac{1}{x^2}} = 28$$

$$\frac{1}{x^3} + 1 = 28 \implies \frac{1}{x^3} = 28 - 1 = 27$$

$$x^3 = \frac{1}{27}$$

$$x = \frac{1}{3} \text{ bulunur.}$$

Cevap: A

11. $\left((x+3)\sqrt{x-3}\right)^2 = \left(\sqrt{3x+9}\right)^2$

$(x+3)^2 \cdot (x-3) = (3x+9)$

$\cancel{(x+3)} \cdot (x+3) \cdot (x-3) = 3 \cdot \cancel{(x+3)}$

$x^2 - 9 = 3$

$x^2 = 12 \implies x = \sqrt{12}$

$x = 2\sqrt{3}$ olur.

Cevap: B

12. $\quad \dfrac{x}{a} \cdot \dfrac{b}{y} = 3 \quad \Rightarrow \quad \dfrac{b}{y} = \dfrac{3a}{x}$

$$\dfrac{a^2}{x^2} + \dfrac{b^2}{y^2} = 90$$

$$\dfrac{a^2}{x^2} + \left(\dfrac{b}{y}\right)^2 = 90$$

$$\dfrac{a^2}{x^2} + \left(\dfrac{3a}{x}\right)^2 = 90$$

$$\dfrac{a^2}{x^2} + \dfrac{9a^2}{x^2} = 90 \quad \Rightarrow \quad \dfrac{10a^2}{x^2} = 90$$

$$\sqrt{\dfrac{a^2}{x^2}} = \sqrt{9}$$

$$\dfrac{a}{x} = 3 \quad \text{olur.}$$

$$x = \dfrac{a}{3} \quad \text{bulunur.}$$

Cevap: B

13. $\quad \dfrac{1}{x^2} + \dfrac{4}{\underset{(x)}{x}} + \dfrac{4}{\underset{(x^2)}{1}} = 0$

$$\dfrac{1 + 4x + 4x^2}{x^2} = 0$$

$$\Rightarrow \quad 4x^2 + 4x + 1 = 0$$

$$\begin{array}{cc} 2x & 1 \\ 2x & 1 \end{array}$$

$$(2x + 1)^2 = 0 \quad \Rightarrow \quad 2x + 1 = 0$$

$$2x = -1$$

$$x = -\dfrac{1}{2} \quad \text{bulunur.}$$

Cevap: A