1.
$$a = (4 - \sqrt{7})^2$$
$$= 16 - 8\sqrt{7} + 7$$
$$= 23 - 8\sqrt{7}$$
$$= 23 - 2.4\sqrt{7}$$
$$= 23 - 2\sqrt{4^2 \cdot 7}$$
$$= 23 - 2\sqrt{112} \quad \Rightarrow \quad a = 23 - 2\sqrt{112}$$
$$2\sqrt{112} = 23 - a$$
$$\sqrt{112} = \frac{23 - a}{2} \quad \text{olur.}$$

Cevap: D

2.
$$x^{\frac{3}{4}} = \sqrt{3}$$
$$\left(x^{\frac{3}{4}}\right)^{\frac{8}{5}} = (\sqrt{3})^{\frac{8}{5}}$$
$$x^{\frac{6}{5}} = 3^{\frac{1}{2} \cdot \frac{8}{5}}$$
$$x^{\frac{6}{5}} = 3^{\frac{4}{5}} = \sqrt[5]{3^4} = \sqrt[5]{81}$$

Cevap: B

3.
$$\frac{x\sqrt{y} + y\sqrt{x}}{x^2 - y^2} = \frac{1}{\sqrt{x} - \sqrt{y}}$$
$$\frac{\sqrt{x}\sqrt{y}(\sqrt{x} + \sqrt{y})}{(x - y)(x + y)} = \frac{1}{\sqrt{x} - \sqrt{y}}$$
$$\sqrt{x}\sqrt{y}(\sqrt{x} + \sqrt{y}) \cdot (\sqrt{x} - \sqrt{y}) = (x - y)(x + y)$$
$$\sqrt{xy}(x - y) = (x - y)(x + y)$$
$$x + y = \sqrt{xy} \quad \Rightarrow \quad (x + y)^2 = (\sqrt{xy})^2$$
$$x^2 + 2xy + y^2 = xy$$
$$x^2 + y^2 = -xy$$
$$\Rightarrow \quad \frac{x}{y} + \frac{y}{x} = \frac{x^2 + y^2}{xy} = \frac{-xy}{xy} = -1$$

Cevap: B

4.
$$\frac{9\sqrt{x} + 27}{9 - x} - \frac{x}{3 - \sqrt{x}} = \frac{13}{3}$$
$$\frac{9(\sqrt{x} + 3)}{(3 - \sqrt{x})(3 + \sqrt{x})} - \frac{x}{3 - \sqrt{x}} = \frac{13}{3}$$
$$\frac{9 - x}{3 - \sqrt{x}} = \frac{13}{3}$$
$$\frac{(3 - \sqrt{x})(3 + \sqrt{x})}{3 - \sqrt{x}} = \frac{13}{3}$$
$$3 + \sqrt{x} = \frac{13}{3} \quad \Rightarrow \quad \sqrt{x} = \frac{13}{3} - 3 = \frac{4}{3}$$
$$x = \frac{16}{9} \quad \text{olur.}$$

Cevap: E

5.
$$\frac{\sqrt{x + 3}}{\sqrt{5x - 15}} = \frac{1}{x - 3}$$
$$\frac{\sqrt{x + 3}}{\sqrt{5}(\sqrt{x - 3})} = \frac{1}{(\sqrt{x - 3})^2}$$
$$\frac{\sqrt{x + 3}}{\sqrt{5}} = \frac{1}{\sqrt{x - 3}}$$
$$\sqrt{(x + 3)(x - 3)} = \sqrt{5}$$
$$\sqrt{x^2 - 9} = \sqrt{5}$$
$$x^2 - 9 = 5$$
$$x^2 = 14$$
$$x = \sqrt{14}$$

Cevap: C

6.

Her iki tarafın karesi alındı   Paylar eşitlendi

$$x = \frac{\sqrt{3}}{3} \quad \rightarrow \quad x^2 = \frac{3}{9} \quad \rightarrow \quad x^2 = \frac{3.20}{9.20} = \frac{60}{180}$$

$$y = \frac{2}{\sqrt{3}} \quad \rightarrow \quad y^2 = \frac{4}{3} \quad \rightarrow \quad y^2 = \frac{4.15}{3.15} = \frac{60}{45}$$

$$z = \frac{\sqrt{5}}{2} \quad \rightarrow \quad z^2 = \frac{5}{4} \quad \rightarrow \quad z^2 = \frac{5.12}{4.12} = \frac{60}{48}$$

Payları eşit pozitif kesirlerden paydası küçük olan büyüktür.

O halde y > z > x sıralaması gerçekleşir.

Cevap: C

7. $a = 3\sqrt{2} \quad \Rightarrow \quad a^2 = 9.2 = 18$
$b = \sqrt{21} \quad \Rightarrow \quad b^2 = 21$
$c = 2\sqrt{3} \quad \Rightarrow \quad c^2 = 4.3 = 12$

$\Rightarrow \qquad c < a < b$

Cevap: A

8. $a = \sqrt{2} + \sqrt{10} \quad \Rightarrow \quad a^2 = 2 + 2\sqrt{20} + 10 = 12 + 2\sqrt{20}$

$b = \sqrt{5} + \sqrt{7} \quad \Rightarrow \quad b^2 = 5 + 2\sqrt{35} + 7 = 12 + 2\sqrt{35}$

$c = \sqrt{3} + 3 \quad \Rightarrow \quad c^2 = 3 + 2\sqrt{27} + 9 = 12 + 2\sqrt{27}$

$\Rightarrow \quad a < c < b$

Cevap: D

9.

$$x = \frac{1}{\underset{(\sqrt{13}+\sqrt{11})}{\sqrt{13} - \sqrt{11}}} = \frac{\sqrt{13} + \sqrt{11}}{2}$$

$$y = \frac{1}{\underset{(\sqrt{11}+\sqrt{9})}{\sqrt{11} - \sqrt{9}}} = \frac{\sqrt{11} + \sqrt{9}}{2}$$

$$z = \frac{1}{\underset{(\sqrt{9}+\sqrt{7})}{\sqrt{9} - \sqrt{7}}} = \frac{\sqrt{9} + \sqrt{7}}{2}$$

$\Rightarrow \quad x > y > z$

Cevap: B

Tasarı Eğitim Yayınları