

$$\begin{aligned}
 1. \quad a + \frac{3}{\sqrt{a}} &= a + \frac{a + \sqrt{a}}{\sqrt{a}} \\
 &= a + \frac{a}{\sqrt{a}} + \frac{\sqrt{a}}{\sqrt{a}} = a + \frac{\cancel{a}\sqrt{a}}{\cancel{a}} + 1 \\
 &= a + \sqrt{a} + 1 = 3 + 1 = 4
 \end{aligned}$$

Yukarıdaki çözümde 3 yerine $a + \sqrt{a}$ yazıldı.

Cevap: A

$$\begin{aligned}
 2. \quad \frac{\sqrt{\frac{48}{100}} + \sqrt{\frac{27}{100}}}{\sqrt{\frac{147}{100}}} &= \frac{\frac{4}{10}\sqrt{3} + \frac{3}{10}\sqrt{3}}{\frac{7}{10}\sqrt{3}} \\
 &= \frac{\cancel{\sqrt{3}} \left(\frac{4}{10} + \frac{3}{10} \right)}{\frac{7}{10}\cancel{\sqrt{3}}} = 1
 \end{aligned}$$

Cevap: C

3. $\sqrt{252} = \sqrt{36 \cdot 7} = 6\sqrt{7}$ ifadesinin yaklaşık değerini bilmek için, $\sqrt{7}$ 'nin yaklaşık değeri bilinmelidir.

Cevap: D

$$\begin{aligned}
 4. \quad \sqrt{\frac{5}{10}} - \sqrt{\frac{32}{100}} + \sqrt{\frac{72}{100}} &= \\
 &= \sqrt{\frac{1}{2}} = \frac{4}{10}\sqrt{2} + \frac{6}{10}\sqrt{2} \\
 &= \frac{\sqrt{2}}{2} + \frac{4}{10}\sqrt{2} + \frac{6}{10}\sqrt{2} \\
 &= \sqrt{2} \left(\frac{1}{2} + \frac{4}{10} + \frac{6}{10} \right) \\
 &= \sqrt{2} \left(\frac{1}{2} + 1 \right) = \frac{3}{2} \cdot \sqrt{2}
 \end{aligned}$$

Cevap: A

$$\begin{aligned}
 5. \quad \frac{7 \cdot (2 + 3\sqrt{2})}{(2 - 3\sqrt{2})(2 + 3\sqrt{2})} + \frac{7 \cdot (2 - 3\sqrt{2})}{(2 + 3\sqrt{2})(2 - 3\sqrt{2})} &= \\
 &= \frac{\cancel{7} \cdot (2 + 3\sqrt{2})}{\frac{-14}{2}} + \frac{\cancel{7} \cdot (2 - 3\sqrt{2})}{\frac{-14}{2}} + \\
 &= \frac{2 + 3\sqrt{2}}{-2} + \frac{2 - 3\sqrt{2}}{-2} \\
 &= \frac{2 + 3\sqrt{2} + 2 - 3\sqrt{2}}{-2} = \frac{4}{-2} = -2
 \end{aligned}$$

Cevap: D

$$\begin{aligned}
6. \sqrt{4 + \sqrt{28 - \sqrt{5 + \sqrt{13 + \sqrt{9}}}}} &= \\
&= \sqrt{4 + \sqrt{28 - \sqrt{5 + \sqrt{16}}}} \\
&= \sqrt{4 + \sqrt{28 - \sqrt{5 + 4}}} \\
&= \sqrt{4 + \sqrt{28 - \sqrt{9}}} \\
&= \sqrt{4 + \sqrt{28 - 3}} \\
&= \sqrt{4 + \sqrt{25}} = \sqrt{4 + 5} = \sqrt{9} = 3
\end{aligned}$$

Cevap: C

$$\begin{aligned}
7. \sqrt{4 + \sqrt{27 - \sqrt{9 - 5}}} &= \\
&= \sqrt{4 + \sqrt{27 - 2}} = \sqrt{4 + \sqrt{25}} \\
&= \sqrt{4 + 5} = \sqrt{9} = 3
\end{aligned}$$

Cevap: A

$$\begin{aligned}
8. \frac{4 \cdot (4 + 3\sqrt{2})}{(4 - 3\sqrt{2})(4 + 3\sqrt{2})} + \frac{12\sqrt{2}}{\sqrt{2} \cdot \sqrt{2}} &= \\
&= \frac{\cancel{4} \cdot (4 + 3\sqrt{2})}{\cancel{-2} \cdot \cancel{2}} + \frac{\cancel{6} \cdot 12\sqrt{2}}{\cancel{2} \cdot \cancel{2}} \\
&= -2(4 + 3\sqrt{2}) + 6\sqrt{2} \\
&= -8 - 6\sqrt{2} + 6\sqrt{2} = -8
\end{aligned}$$

Cevap: D

$$\begin{aligned}
9. \frac{\sqrt{4.3} + \sqrt{4.2}}{\sqrt{9.2} + \sqrt{9.3}} &= \frac{2\sqrt{3} + 2\sqrt{2}}{3\sqrt{2} + 3\sqrt{3}} \\
&= \frac{2(\sqrt{3} + \sqrt{2})}{2(\sqrt{2} + \sqrt{3})} = \frac{2}{3}
\end{aligned}$$

Cevap: B

$$\begin{aligned}
10. \sqrt{300} &= \sqrt{100.3} = 10\sqrt{3} \\
&= 5 \cdot 2\sqrt{3} \\
&= 5 \cdot (\sqrt{2})^2 \cdot \sqrt{3} = 5 \cdot a^2 \cdot b
\end{aligned}$$

Cevap: C

$$\begin{aligned}
11. \sqrt{\left(\frac{1}{3}\right)^2 - \left(\frac{1}{5}\right)^2} + 2 \cdot \frac{1}{5} \cdot \frac{1}{5} &= \\
&= \sqrt{\left(\frac{1}{3} - \frac{1}{5}\right)^2} \\
&= \frac{1}{3} \cdot \frac{1}{5} + \frac{2}{15}
\end{aligned}$$

Cevap: B

$$\begin{aligned}
12. \quad & \frac{3\sqrt{4+\sqrt{7}}}{\sqrt{4-\sqrt{7}} \cdot \sqrt{4+\sqrt{7}}} = A \\
& = \frac{3\sqrt{4+\sqrt{7}}}{\sqrt{(4-\sqrt{7})(4+\sqrt{7})}} = A \\
& = \frac{3\sqrt{4+\sqrt{7}}}{\sqrt{16-7}} = A \\
& \Rightarrow \frac{\cancel{3}\sqrt{4+\sqrt{7}}}{\cancel{3}} = \sqrt{4+\sqrt{7}} = A
\end{aligned}$$

Cevap: B

$$\begin{aligned}
13. \quad & 2\sqrt{9 \cdot 2} + \sqrt{25 \cdot 2} - 3\sqrt{36 \cdot 2} + \sqrt{49 \cdot 2} \\
& = 6\sqrt{2} + 5\sqrt{2} - 18\sqrt{2} + 7\sqrt{2} \\
& = \sqrt{2} (6 + 5 - 18 + 7) = \sqrt{2} \cdot 0 = 0
\end{aligned}$$

Cevap: C

$$\begin{aligned}
14. \quad & \sqrt{36 \cdot 3} - \sqrt{16 \cdot 3} - \sqrt{25 \cdot 3} + \sqrt{81 \cdot 3} \\
& = 6\sqrt{3} - 4\sqrt{3} - 5\sqrt{3} + 9\sqrt{3} \\
& = \sqrt{3} (6 - 4 - 5 + 9) = 6\sqrt{3}
\end{aligned}$$

Cevap: C

$$\begin{aligned}
15. \quad & \sqrt{\frac{16}{100}} + \sqrt{\frac{9}{100}} - \sqrt{\frac{4}{100}} + \sqrt{\frac{25}{100}} = \\
& = \frac{4}{10} + \frac{3}{10} - \frac{2}{10} + \frac{5}{10} = \frac{10}{10} = 1
\end{aligned}$$

Cevap: A

$$\begin{aligned}
16. \quad & \frac{3\sqrt{3}}{\sqrt{3} \cdot \sqrt{3}} + \frac{3(3-\sqrt{3})}{(3+\sqrt{3})(3-\sqrt{3})} = \\
& = \frac{\cancel{3}\sqrt{3}}{\cancel{3}} + \frac{3(3-\sqrt{3})}{9-3} \\
& = \sqrt{3} + \frac{\cancel{3}(3-\sqrt{3})}{\cancel{6}} \\
& = \sqrt{3} + \frac{3-\sqrt{3}}{2} = \frac{\sqrt{3}+3}{2}
\end{aligned}$$

Cevap: D

$$\begin{aligned}
17. \quad & \frac{(1-\sqrt{2})(1-\sqrt{2})}{(1+\sqrt{2})(1-\sqrt{2})} - \frac{(1+\sqrt{2})(1+\sqrt{2})}{(1-\sqrt{2})(1+\sqrt{2})} \\
& = \frac{(1-\sqrt{2})^2}{-1} - \frac{(1+\sqrt{2})^2}{-1} \\
& = -(1-\sqrt{2})^2 + (1+\sqrt{2})^2 \\
& = (1+\sqrt{2})^2 - (1-\sqrt{2})^2 \Rightarrow \\
& \quad \text{(iki kare farkına göre)} \\
& = (\cancel{1} + \sqrt{2} - \cancel{1} + \sqrt{2})(1 + \sqrt{2} + 1 - \sqrt{2}) \\
& = 2\sqrt{2} \cdot 2 = 4\sqrt{2}
\end{aligned}$$

Cevap: D

$$\begin{aligned}
18. \quad & 5\sqrt{2} + 2\sqrt{9 \cdot 2} - 3\sqrt{16 \cdot 2} = \\
& = 5\sqrt{2} + 6\sqrt{2} - 12\sqrt{2} = -\sqrt{2}
\end{aligned}$$

Cevap: A

$$\begin{aligned}
19. \quad & \sqrt{21 + \sqrt{21 - \sqrt{21 + \sqrt{18 - 2}}}} = \\
& = \sqrt{21 + \sqrt{21 - \sqrt{21 + 4}}} \\
& = \sqrt{21 + \sqrt{21 - 5}} \\
& = \sqrt{21 + 4} = 5
\end{aligned}$$

Cevap: D

$$\begin{aligned}
20. \quad & x + \sqrt{x^2 + 1} = \frac{1}{y + \sqrt{y^2 + 1}} \\
\Rightarrow & x + \sqrt{x^2 + 1} = \frac{1 \cdot (y - \sqrt{y^2 + 1})}{(y + \sqrt{y^2 + 1})(y - \sqrt{y^2 + 1})}
\end{aligned}$$

$$\Rightarrow x + \sqrt{x^2 + 1} = \frac{y - \sqrt{y^2 + 1}}{y^2 - (y^2 + 1)}$$

$$\Rightarrow x + \sqrt{x^2 + 1} = \frac{y - \sqrt{y^2 + 1}}{-1} = \sqrt{y^2 + 1} - y$$

$$\Rightarrow x + \sqrt{x^2 + 1} = \sqrt{y^2 + 1} - y$$

$$\Rightarrow x = -y \text{ elde edilir.}$$

$$x + y = 0$$

Cevap: D