

$$1. x = \frac{1}{\sqrt{2}+1} - \frac{1}{\sqrt{2}-1}$$

$$x = \frac{\sqrt{2}-1-\sqrt{2}-1}{2-1} = \frac{-2}{1} = -2 \text{ olur.}$$

$$\sqrt{(-x)^2} = \sqrt{(-(-2))^2} = 2 \text{ bulunur.}$$

$$2. \frac{6}{\sqrt{7}-2} - \frac{3}{\sqrt{7}+2} = \frac{6\sqrt{7}+12}{3} + \frac{3\sqrt{7}-6}{3}$$

$$= \frac{9\sqrt{7}+6}{3}$$

$$= 3\sqrt{7}+2 \text{ bulunur.}$$

$$3. \frac{\sqrt{3,9+4,9}}{\sqrt{\left(\frac{1}{9}\right)}} = \frac{\sqrt{4+5}}{\frac{1}{3}}$$

$$= \frac{\sqrt{9}}{\frac{1}{3}}$$

$$= 3 \cdot 3 = 9 \text{ bulunur.}$$

$$4. \sqrt{(-4)^2} - \sqrt[3]{-27} = 8$$

$| -4 | - \sqrt[3]{(-3)^3} = 4 + 3 = 7 \neq 8$ olduğundan I. ifade yanlıştır. Diğer ifadeler doğrudur.

$$5. a = \sqrt{3} \rightarrow a = 3^{\frac{1}{2}}$$

$$b = \sqrt[6]{9} \rightarrow b = 3^{\frac{1}{3}}$$

$$c = \sqrt[5]{27} \rightarrow c = 3^{\frac{3}{5}}$$

$$\frac{1}{3} < \frac{1}{2} < \frac{3}{5}$$

$$b < a < c \text{ bulunur.}$$

$$6. \sqrt{(2x-3)^2} = 4x-1$$

$$|2x-3| = 4x-1$$

$$2x-3 = 4x-1 \rightarrow -2 = 2x \rightarrow x \neq -1$$

$$(4x-1 = -5 \text{ olduğundan})$$

$$2x-3 = -4x+1 \rightarrow 6x = 4 \rightarrow x = \frac{2}{3} \text{ olur.}$$

x değerler toplamı $\frac{2}{3}$ bulunur.

$$\begin{aligned}
 7. \quad \frac{\sqrt{0,0009} - \sqrt[3]{-0,027}}{\sqrt{0,0081}} &= \frac{\sqrt{\frac{3^2}{10^4}} - \sqrt[3]{-\frac{3^3}{10^3}}}{\sqrt{\frac{3^4}{10^4}}} \\
 &= \frac{0,03 + 0,3}{0,09} \\
 &= \frac{33}{9} \\
 &= \frac{11}{3} \text{ bulunur.}
 \end{aligned}$$

$$\begin{aligned}
 8. \quad \frac{2}{\sqrt[3]{2}} + \frac{9}{4 - \sqrt{7}} - \sqrt{7} &= \frac{2 \cdot \sqrt[3]{4}}{2} + \frac{9(4 + \sqrt{7})}{16 - 7} - \sqrt{7} \\
 &= \sqrt[3]{4} + \frac{9(4 + \sqrt{7})}{9} - \sqrt{7} \\
 &= \sqrt[3]{4} + 4 \text{ bulunur.}
 \end{aligned}$$

$$\begin{aligned}
 9. \quad \sqrt[n]{y^n \sqrt[n]{y^n} y \dots} &= y^{n+1} \\
 n \cdot \sqrt[n]{y} &= y^{n+1} \\
 \frac{1}{y^{n-1}} &= y^{n+1} \\
 \frac{1}{n-1} &= n+1 \\
 n^2 - 1 &= 1 \\
 n^2 &= 2 \\
 n &= \pm\sqrt{2} \text{ bulunur.}
 \end{aligned}$$

$$\begin{aligned}
 10. \quad \sqrt{8 - 2\sqrt{15}} + \sqrt{7 + 2\sqrt{12}} \\
 \swarrow \quad \searrow \quad \quad \quad \swarrow \quad \searrow \\
 3 \cdot 5 \quad \quad \quad 3 \cdot 4 \\
 = (\sqrt{5} - \sqrt{3}) + (\sqrt{4} + \sqrt{3}) \\
 = \sqrt{5} + \sqrt{4} = 2 + \sqrt{5} \text{ bulunur.}
 \end{aligned}$$