

1. Средити изразе:

$$\begin{aligned} 1) \quad 5\sqrt{2} + 3\sqrt{8} - \sqrt{50} - \sqrt{98} &= 5\sqrt{2} + 3 \cdot 2\sqrt{2} - 5\sqrt{2} - 7\sqrt{2} = \\ &= 6\sqrt{2} - 7\sqrt{2} = -1\sqrt{2} = \boxed{-\sqrt{2}} \end{aligned}$$

$$\begin{aligned} \sqrt{8} &= \sqrt{4 \cdot 2} = \sqrt{4} \cdot \sqrt{2} = 2\sqrt{2} \\ \sqrt{50} &= \sqrt{25 \cdot 2} = \sqrt{25} \cdot \sqrt{2} = 5\sqrt{2} \\ \sqrt{98} &= \sqrt{49 \cdot 2} = \sqrt{49} \cdot \sqrt{2} = 7\sqrt{2} \end{aligned}$$

$$\begin{aligned} 2) \quad 3\sqrt{3} + 2\sqrt{27} - \sqrt{75} - \sqrt{108} &= 3\sqrt{3} + 2 \cdot 3\sqrt{3} - 5\sqrt{3} - 6\sqrt{3} \\ &= 3\sqrt{3} + 6\sqrt{3} - 5\sqrt{3} - 6\sqrt{3} \\ &= \boxed{-2\sqrt{3}} \end{aligned}$$

$$\begin{aligned} \sqrt{27} &= \sqrt{9 \cdot 3} = \sqrt{9} \cdot \sqrt{3} = 3\sqrt{3} \\ \sqrt{75} &= \sqrt{25 \cdot 3} = \sqrt{25} \cdot \sqrt{3} = 5\sqrt{3} \\ \sqrt{108} &= \sqrt{36 \cdot 3} = \sqrt{36} \cdot \sqrt{3} = 6\sqrt{3} \end{aligned}$$

$$\begin{aligned} 3) \quad 2\sqrt{12} - 3\sqrt{27} + \sqrt{48} &= 2 \cdot 2\sqrt{3} - 3 \cdot 3\sqrt{3} + 4\sqrt{3} = \\ &= 4\sqrt{3} - 9\sqrt{3} + 4\sqrt{3} = \\ &= -1\sqrt{3} = \boxed{-\sqrt{3}} \end{aligned}$$

$$\begin{aligned} \sqrt{12} &= \sqrt{4 \cdot 3} = \sqrt{4} \cdot \sqrt{3} = 2 \cdot \sqrt{3} = 2\sqrt{3} \\ \sqrt{27} &= \sqrt{9 \cdot 3} = \sqrt{9} \cdot \sqrt{3} = 3 \cdot \sqrt{3} = 3\sqrt{3} \\ \sqrt{48} &= \sqrt{16 \cdot 3} = \sqrt{16} \cdot \sqrt{3} = 4 \cdot \sqrt{3} = 4\sqrt{3} \end{aligned}$$

$$\begin{aligned} 4) \quad 4\sqrt{2} - 3\sqrt{50} - 2\sqrt{98} &= 4\sqrt{2} - 3 \cdot 5\sqrt{2} - 2 \cdot 7\sqrt{2} = \\ &= 4\sqrt{2} - 15\sqrt{2} - 14\sqrt{2} = \\ &= \boxed{-5\sqrt{2}} \end{aligned}$$

$$\begin{aligned} \sqrt{50} &= \sqrt{25 \cdot 2} = \sqrt{25} \cdot \sqrt{2} = 5\sqrt{2} \\ \sqrt{98} &= \sqrt{49 \cdot 2} = \sqrt{49} \cdot \sqrt{2} = 7\sqrt{2} \end{aligned}$$

$$\begin{aligned} 5) \quad 3\sqrt{18} - 3\sqrt{8} + 4\sqrt{50} &= 3 \cdot 3\sqrt{2} - 3 \cdot 2\sqrt{2} + 4 \cdot 5\sqrt{2} \\ &= 9\sqrt{2} - 6\sqrt{2} + 20\sqrt{2} \\ &= 23\sqrt{2} \end{aligned}$$

$$\begin{aligned} \sqrt{18} &= \sqrt{9 \cdot 2} = \sqrt{9} \cdot \sqrt{2} = 3 \cdot \sqrt{2} = 3\sqrt{2} \\ \sqrt{8} &= \sqrt{4 \cdot 2} = \sqrt{4} \cdot \sqrt{2} = 2 \cdot \sqrt{2} = 2\sqrt{2} \\ \sqrt{50} &= \sqrt{25 \cdot 2} = \sqrt{25} \cdot \sqrt{2} = 5 \cdot \sqrt{2} = 5\sqrt{2} \end{aligned}$$

$$\begin{aligned} 6) \quad \frac{-2\sqrt{5} + 4\sqrt{45} + \sqrt{125}}{\sqrt{5}} &= \frac{-2\sqrt{5} + 4 \cdot 3\sqrt{5} + 5\sqrt{5}}{\sqrt{5}} \\ &= \frac{-2\sqrt{5} + 12\sqrt{5} + 5\sqrt{5}}{\sqrt{5}} \\ &= \frac{15\sqrt{5}}{\sqrt{5}} \\ &= 15 \end{aligned}$$

$$\begin{aligned} \sqrt{45} &= \sqrt{9 \cdot 5} = \sqrt{9} \cdot \sqrt{5} = 3 \cdot \sqrt{5} = 3\sqrt{5} \\ \sqrt{125} &= \sqrt{25 \cdot 5} = \sqrt{25} \cdot \sqrt{5} = 5 \cdot \sqrt{5} = 5\sqrt{5} \end{aligned}$$

$$\begin{aligned} 7) \quad (6\sqrt{12} + 3\sqrt{27} - 2\sqrt{48}) \cdot \sqrt{3} &= (6 \cdot 2\sqrt{3} + 3 \cdot 3\sqrt{3} - 2 \cdot 4\sqrt{3}) \cdot \sqrt{3} \\ &= (12\sqrt{3} + 9\sqrt{3} - 8\sqrt{3}) \cdot \sqrt{3} \\ &= 13\sqrt{3} \cdot \sqrt{3} \\ &= 13 \cdot 3 \\ &= 39 \end{aligned}$$

$$\begin{aligned} \sqrt{12} &= \sqrt{4 \cdot 3} = \sqrt{4} \cdot \sqrt{3} = 2 \cdot \sqrt{3} = 2\sqrt{3} \\ \sqrt{27} &= \sqrt{9 \cdot 3} = \sqrt{9} \cdot \sqrt{3} = 3 \cdot \sqrt{3} = 3\sqrt{3} \\ \sqrt{48} &= \sqrt{16 \cdot 3} = \sqrt{16} \cdot \sqrt{3} = 4 \cdot \sqrt{3} = 4\sqrt{3} \end{aligned}$$

2. Средити изразе:

$$1) \quad 2\sqrt{2} + \frac{10}{\sqrt{2}} = 2\sqrt{2} + \frac{10}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = 2\sqrt{2} + \frac{10\sqrt{2}}{\sqrt{4}} = 2\sqrt{2} + \frac{10^5\sqrt{2}}{\cancel{2}^1} = 2\sqrt{2} + 5\sqrt{2} = \boxed{7\sqrt{2}}$$

$$2) \quad -7\sqrt{3} + \frac{6}{\sqrt{3}} = -7\sqrt{3} + \frac{6}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = -7\sqrt{3} + \frac{6\sqrt{3}}{\sqrt{9}} = -7\sqrt{3} + \frac{6\sqrt{3}}{3} = -7\sqrt{3} + 2\sqrt{3} = \boxed{-5\sqrt{3}}$$

$$3) \quad \frac{10}{\sqrt{5}} - 4\sqrt{5} = \frac{10}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} - 4\sqrt{5} = \frac{10\sqrt{5}}{\sqrt{25}} - 4\sqrt{5} = \frac{10\sqrt{5}}{5} - 4\sqrt{5} = 2\sqrt{5} - 4\sqrt{5} = \boxed{-2\sqrt{5}}$$