

$$\begin{aligned}
& \sqrt{75} + 3\sqrt{18} - 2\sqrt{12} - 2\sqrt{50} = \\
& = \sqrt{5^2 \cdot 3} + 3\sqrt{3^2 \cdot 2} - 2\sqrt{2^2 \cdot 3} - 2\sqrt{5^2 \cdot 2} = \\
& = \sqrt{5^2} \sqrt{3} + 3\sqrt{3^2} \cdot \sqrt{2} - 2\sqrt{2^2} \sqrt{3} - 2\sqrt{5^2} \sqrt{2} = \\
& = 5\sqrt{3} + 9\sqrt{2} - 4\sqrt{3} - 10\sqrt{2} = \\
& = \sqrt{3} - \sqrt{2}
\end{aligned}$$

$$\begin{aligned}
& 3\sqrt{128} - 2\sqrt{72} - (2\sqrt{50} + \sqrt{8}) = \\
& 3\sqrt{2^2 \cdot 2^2 \cdot 2^2 \cdot 2} - 2\sqrt{2^3 \cdot 3^2} - (2\sqrt{5^2 \cdot 2} + \sqrt{2^3}) = \\
& 24\sqrt{2} - 12\sqrt{2} - (10\sqrt{2} + 2\sqrt{2}) = \\
& = 12\sqrt{2} - 10\sqrt{2} - 2\sqrt{2} = \\
& = 0
\end{aligned}$$

$$\begin{aligned}
& 2\sqrt{2^2 \cdot 2 \cdot 3^2} = \\
& 2\sqrt{2^2 \cdot \sqrt{3^2} \sqrt{2}} = \\
& 2 \cdot 2 \cdot 3 \cdot \sqrt{2} = \\
& 12\sqrt{2}
\end{aligned}$$

$$\begin{aligned}
& (2 + \sqrt{3})(1 + \sqrt{3}) = \\
& = 2 + 2\sqrt{3} + \sqrt{3} + \sqrt{9} = \\
& = 2 + 2\sqrt{3} + \sqrt{3} + \sqrt{3^2} = \\
& = 2 + 3\sqrt{3} + 3 \Rightarrow 5 + 3\sqrt{3}
\end{aligned}$$

$$\begin{aligned}
& \left(2 - \frac{1}{3} \cdot \sqrt{2}\right)^2 \cdot \sqrt{\frac{27}{16}} + \sqrt{\frac{50}{9}} = \\
& = \left(2 - \frac{\sqrt{2}}{3}\right)^2 \cdot \sqrt{\frac{3^3}{2^4}} + \sqrt{\frac{2 \cdot 5^2}{3^2}} =
\end{aligned}$$

$$= \left(4 - \frac{4\sqrt{2}}{3} + \frac{\sqrt{4}}{9}\right) \cdot \sqrt{\frac{3^2 \cdot 3}{2^2 \cdot 2^2}} + \frac{5\sqrt{2}}{3} =$$

$$= \underbrace{4 - \frac{4\sqrt{2}}{3}} + \underbrace{\frac{2}{9}} - \frac{3\sqrt{3}}{4} + \frac{5\sqrt{2}}{3} = \frac{38}{9} + \frac{\sqrt{2}}{3} - \frac{3\sqrt{3}}{4}$$

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RAZIONALIZZAZIONE DEI DENOMINATORI

$$\frac{4}{\sqrt{3}} = \frac{4\sqrt{3}}{\sqrt{3}\sqrt{3}} = \frac{4\sqrt{3}}{3}$$

$$\frac{2-\sqrt{2}}{\sqrt{2}} = \frac{2-\sqrt{2}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{2\sqrt{2}-2}{2} = \frac{2(\sqrt{2}-1)}{2} = \sqrt{2}-1$$