

$$\begin{aligned} 3. & \quad 3\sqrt{125} - 2\sqrt{63} - \sqrt{20} + 40\sqrt{3} \\ & = 3\sqrt{25 \cdot 5} - 2\sqrt{9 \cdot 7} - \sqrt{4 \cdot 5} + 40\sqrt{3} \\ & = 3 \cdot 5 \cdot \sqrt{5} - 2 \cdot 3 \cdot \sqrt{7} - 2\sqrt{5} + 40\sqrt{3} \\ & = 15\sqrt{5} - 6\sqrt{7} - 2\sqrt{5} + 40\sqrt{3} \\ & = 13\sqrt{5} - 6\sqrt{7} + 40\sqrt{3} \end{aligned}$$

$$\begin{aligned} 4) & \quad 2\sqrt{8} - 4\sqrt{27} + 3\sqrt{32} - 3\sqrt{75} \\ & = 2 \cdot \sqrt{4 \cdot 2} - 4\sqrt{9 \cdot 3} + 3\sqrt{16 \cdot 2} - 3\sqrt{25 \cdot 3} \\ & = 2 \cdot 2 \cdot \sqrt{2} - 4 \cdot 3 \cdot \sqrt{3} + 3 \cdot 4 \cdot \sqrt{2} - 3 \cdot 5 \cdot \sqrt{3} \\ & = 4\sqrt{2} - 12\sqrt{3} + 12\sqrt{2} - 15\sqrt{3} \\ & = 16\sqrt{2} - 27\sqrt{3} \end{aligned}$$

$$\begin{aligned} 5) \quad & 2\sqrt{45} - 3\sqrt{11} + \sqrt{36} - \sqrt{44} + 20\sqrt{5} - \sqrt{1} \\ & = 2\sqrt{9 \cdot 5} - 3\sqrt{11} + 6 - \sqrt{4 \cdot 11} + 20\sqrt{5} - 1 \\ & = 2 \cdot 3 \cdot \sqrt{5} - 3\sqrt{11} + 5 - 2\sqrt{11} + 20\sqrt{5} \\ & = 6\sqrt{5} - 5\sqrt{11} + 5 + 20\sqrt{5} \\ & = 26\sqrt{5} - 5\sqrt{11} + 5 \end{aligned}$$

⊗ and ⊘

$$\sqrt{44} = \sqrt{4 \cdot 11} = \sqrt{4} \cdot \sqrt{11} = 2 \cdot \sqrt{11}$$

$$\sqrt{3} \cdot \sqrt{15} = \sqrt{45} = \sqrt{9 \cdot 5} = 3\sqrt{5}$$

$$\sqrt{3 \cdot 15} = \sqrt{45}$$

$$4\sqrt{5} \cdot \sqrt{11} = 4 \cdot \sqrt{5 \cdot 11} = 4\sqrt{55}$$

$$(3\sqrt{5} + \sqrt{3})(1 + \sqrt{3}) \quad \text{FOIL}$$

$$= 3\sqrt{5}(1 + \sqrt{3}) + \sqrt{3}(1 + \sqrt{3})$$


$$= 3\sqrt{5} + 3\sqrt{15} + \sqrt{3} + \sqrt{9}$$

$$= 3\sqrt{5} + 3\sqrt{15} + \sqrt{3} + 3$$

$$3\sqrt{5} + 3\sqrt{15} + \sqrt{3} + \sqrt{9}$$
$$= 3\sqrt{5} + 3\sqrt{15} + \sqrt{3} + 3$$

$$\frac{\sqrt{39}}{\sqrt{13}} = \sqrt{\frac{39}{13}} = \sqrt{3} \quad 0.5 = \frac{1}{2}$$

$$\frac{\sqrt{20}}{4} = \frac{\sqrt{4 \cdot 5}}{4} = \frac{2\sqrt{5}}{4} = \frac{2 \cdot \sqrt{5}}{4} = \frac{2}{4} \cdot \sqrt{5}$$

$$\begin{aligned} & \downarrow \\ & \frac{\sqrt{20}}{\sqrt{16}} = \sqrt{\frac{20}{16}} = \sqrt{\frac{5}{4}} = \frac{\sqrt{5}}{\sqrt{4}} \\ & \qquad \qquad \qquad = \frac{\sqrt{5}}{2} \end{aligned} \quad \begin{aligned} & = \frac{1}{2} \sqrt{5} \\ & = \frac{1 \cdot \sqrt{5}}{2} = \frac{\sqrt{5}}{2} \end{aligned}$$


$$\begin{aligned} \frac{10\sqrt{10}}{2\sqrt{5}} &= \frac{\sqrt{100} \cdot \sqrt{10}}{\sqrt{4} \cdot \sqrt{5}} = \frac{\sqrt{1000}}{\sqrt{20}} = \sqrt{\frac{100}{2}} = \sqrt{50} \\ &= \sqrt{25 \cdot 2} \\ &= 5\sqrt{2} \\ &= \frac{10}{2} \cdot \sqrt{\frac{10}{5}} = 5\sqrt{2} \end{aligned}$$

$$\frac{3\sqrt{20}}{2\sqrt{8}} = \frac{3}{2} \cdot \frac{\sqrt{20}}{\sqrt{8}} = \frac{3}{2} \sqrt{\frac{20}{8}} = \frac{3}{2} \sqrt{\frac{5}{2}} = \frac{3}{2} \cdot \frac{\sqrt{5}}{\sqrt{2}} = \frac{3\sqrt{5}}{2\sqrt{2}}$$

$$\frac{3\sqrt{5}}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{3\sqrt{10}}{2\sqrt{4}} = \frac{3\sqrt{10}}{2 \cdot 2} = \frac{3\sqrt{10}}{4}$$



