

12.3.15

1. Add or Subtract, then simplify.

$$\begin{aligned} & \sqrt{27} + \sqrt{63} + \sqrt{48} \\ & \cancel{\sqrt{9}} \cdot \sqrt{3} + \cancel{\sqrt{9}} \cdot \sqrt{7} + \cancel{\sqrt{16}} \cdot \sqrt{3} \\ & \textcircled{3}\sqrt{3} + 3\sqrt{7} + \textcircled{4}\sqrt{3} \\ & \boxed{7\sqrt{3} + 3\sqrt{7}} \end{aligned}$$

2. Multiply, then simplify.

$$\begin{aligned} & -4\sqrt{45} \cdot \sqrt{176} \\ & -4\cancel{\sqrt{9}} \cdot \sqrt{5} \cdot \cancel{\sqrt{16}} \sqrt{11} \\ & -4 \cdot 3 \cdot \sqrt{5} \cdot 4 \cdot \sqrt{11} \\ & -4 \cdot 3 \cdot 4 \sqrt{5 \cdot 11} \\ & \cdot \boxed{-48\sqrt{55}} \end{aligned}$$