

Simplifying Radicals Part 2

Let's review. Combine like terms.

$$1) \sqrt{5} + \sqrt{6} + 2\sqrt{5} - 3\sqrt{6} = 3\sqrt{5} - 2\sqrt{6}$$

$$2) 2\sqrt{2} + 4\sqrt{3} - 5\sqrt{2} = -3\sqrt{2} + 4\sqrt{3}$$

$$3) \sqrt{7} + 3\sqrt{7} - 5\sqrt{7} =$$

$$4) 6\sqrt{11} + 4\sqrt{15} - 9\sqrt{15} + 8\sqrt{11} =$$

Simplify radicals, then combine like terms:

$$\sqrt{45} + \sqrt{5} = \sqrt{9 \cdot 5} + \sqrt{5} = 3\sqrt{5} + 1\sqrt{5} = 4\sqrt{5}$$

$$\sqrt{18} - \sqrt{2} = \sqrt{9 \cdot 2} - \sqrt{2} = 3\sqrt{2} - 1\sqrt{2} = 2\sqrt{2}$$

$$\sqrt{8} + 3\sqrt{2} =$$

$$\sqrt{12} + \sqrt{27} = \sqrt{4 \cdot 3} + \sqrt{9 \cdot 3} = 2\sqrt{3} + 3\sqrt{3} = 5\sqrt{3}$$

$$\sqrt{80} - \sqrt{20} =$$

Solve / Simplify:

$$\begin{aligned} & 3\sqrt{18} + 4\sqrt{75} - 4\sqrt{50} = \\ & 3\sqrt{2\cdot 3\cdot 3} \quad 4\sqrt{3\cdot 5\cdot 5} \quad 4\sqrt{5\cdot 5\cdot 2} \\ & 3\cdot 3\sqrt{2} \quad 4\cdot 5\sqrt{3} \quad 4\cdot 5\sqrt{2} \\ & \underline{9\sqrt{2}} + 20\sqrt{3} - \underline{20\sqrt{2}} = \boxed{-11\sqrt{2} + 20\sqrt{3}} \end{aligned}$$

$$\begin{aligned} & 4\sqrt{27} - \sqrt{180} + 8\sqrt{75} = \\ & 4\sqrt{3\cdot 3\cdot 3} \quad \sqrt{2\cdot 2\cdot 3\cdot 3\cdot 5} \quad 8\sqrt{3\cdot 5\cdot 5} \\ & 4\cdot 3\sqrt{3} \quad 2\cdot 3\sqrt{5} \quad 8\cdot 5\sqrt{3} \\ & 12\sqrt{3} - 6\sqrt{5} + 40\sqrt{3} = \boxed{52\sqrt{3} - 6\sqrt{5}} \end{aligned}$$