

Simplify the expressions by adding.

$$1.) 3\sqrt{5} + 4\sqrt{5} = 7\sqrt{5}$$

$$2.) 2\sqrt{6} + 10\sqrt{6} = 12\sqrt{6}$$

$$3.) 9\sqrt{10} + 4\sqrt{10}$$

$$13\sqrt{10}$$

$$4.) 19\sqrt{15} + 18\sqrt{15}$$

$$37\sqrt{15}$$

Try it!

$$5.) 10\sqrt{2} + \sqrt{40}$$

$$\begin{array}{c} \swarrow \quad \searrow \\ 4 \quad 16 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 2 \quad 2 \quad 2 \quad 5 \\ \text{---} \quad \text{---} \\ 2 \quad 2 \end{array}$$

$$10\sqrt{2} + 2\sqrt{10}$$

$$6.) 3\sqrt{5} + 4\sqrt{125}$$

$$\begin{array}{c} \swarrow \quad \searrow \\ 5 \quad 25 \\ \swarrow \quad \searrow \\ 5 \quad 5 \end{array}$$

$$\begin{array}{l} 3\sqrt{5} + 4 \cdot 5\sqrt{5} \\ 3\sqrt{5} + 20\sqrt{5} \\ \hline 23\sqrt{5} \end{array}$$

$$7.) 5\sqrt{3} + 11\sqrt{27}$$

$$\begin{array}{c} \swarrow \quad \searrow \\ 3 \quad 9 \\ \swarrow \quad \searrow \\ 3 \quad 3 \\ \text{---} \\ 3 \quad 3 \end{array}$$

$$\begin{array}{l} 5\sqrt{3} + 11 \cdot 3\sqrt{3} \\ 5\sqrt{3} + 33\sqrt{3} \\ \hline 38\sqrt{3} \end{array}$$

$$8.) 4\sqrt{6} + 9\sqrt{54}$$

$$\begin{array}{c} \swarrow \quad \searrow \\ 9 \quad 6 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 3 \quad 3 \quad 2 \quad 3 \end{array}$$

$$\begin{array}{l} 4\sqrt{6} + 9 \cdot 3\sqrt{6} \\ 4\sqrt{6} + 27\sqrt{6} \\ \hline 31\sqrt{6} \end{array}$$

Simplify the expressions by subtracting.

1.)  $3\sqrt{5} - 2\sqrt{5}$

$$\sqrt{5}$$

2.)  $13\sqrt{11} - 2\sqrt{11}$

$$11\sqrt{11}$$

3.)  $3\sqrt{3} - 12\sqrt{3}$

$$-9\sqrt{3}$$

4.)  $9\sqrt{6} - 10\sqrt{6}$

$$-\sqrt{6}$$

Try it!

5.)  $4\sqrt{6} - 10\sqrt{24}$

$$\begin{array}{c} \wedge \\ 6 \quad 4 \\ \wedge \quad \wedge \\ 3 \quad 2 \quad (2 \quad 2) \end{array}$$

$$4\sqrt{6} - 10 \cdot 2\sqrt{6}$$

$$4\sqrt{6} - 20\sqrt{6}$$

$$-16\sqrt{6}$$

7.)  $14\sqrt{18} - 2\sqrt{2}$

$$\begin{array}{c} \wedge \\ 9 \quad 2 \\ (3 \quad 3) \end{array}$$

$$14 \cdot 3\sqrt{2} - 2\sqrt{2}$$

$$42\sqrt{2} - 2\sqrt{2}$$

$$40\sqrt{2}$$

6.)  $\sqrt{12} - 12\sqrt{3}$

$$\begin{array}{c} \wedge \\ 4 \quad 3 \\ (2 \quad 2) \end{array}$$

$$2\sqrt{3} - 12\sqrt{3}$$

$$-10\sqrt{3}$$

8.)  $4\sqrt{5} - 2\sqrt{20}$

$$\begin{array}{c} \wedge \\ 4 \quad 5 \\ (2 \quad 2) \end{array}$$

$$4\sqrt{5} - 2 \cdot 2\sqrt{5}$$

$$4\sqrt{5} - 4\sqrt{5}$$

$$0$$