

9.3

Simplify.

$$\textcircled{1} x^{17/5} = (\sqrt[5]{x})^{17} = \sqrt[5]{x^{17}}$$

$$= \sqrt[5]{\cancel{x \cdot x \cdot x \cdot x \cdot x} \cdot \cancel{x \cdot x \cdot x \cdot x \cdot x} \cdot \cancel{x \cdot x \cdot x \cdot x \cdot x} \cdot x \cdot x \cdot x}$$

$$= x \cdot x \cdot x \sqrt[5]{x \cdot x}$$

$$= x^3 \sqrt[5]{x^2}$$

$$\textcircled{2} \sqrt{a^8 b^{15} c^7 d} = a^4 b^7 c^3 \sqrt{b c d}$$

$$\textcircled{3} 90^{1/2} = \sqrt[2]{90}$$

$$= \sqrt[2]{2 \cdot 3 \cdot 3 \cdot 5}$$

$$= 3 \sqrt[2]{2 \cdot 5}$$

$$= 3 \sqrt[2]{10}$$

$$\begin{array}{c} 90 \\ \swarrow \searrow \\ 10 \quad 9 \\ \swarrow \searrow \quad \swarrow \searrow \\ 2 \quad 5 \quad 3 \quad 3 \end{array}$$

$$\textcircled{4} \sqrt[3]{280}$$

$$\sqrt[3]{\cancel{2 \cdot 2 \cdot 2} \cdot 5 \cdot 7}$$

$$2 \sqrt[3]{5 \cdot 7}$$

$$2 \sqrt[3]{35}$$

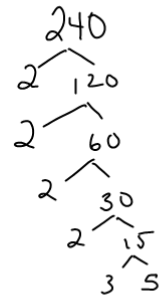
$$\begin{array}{c} 280 \\ \swarrow \searrow \\ 2 \quad 140 \\ \swarrow \searrow \\ 2 \quad 70 \\ \swarrow \searrow \\ 2 \quad 35 \\ \swarrow \searrow \\ 5 \quad 7 \end{array}$$

$$\textcircled{5} \sqrt[4]{240x^7y^9}$$

$$\sqrt[4]{(2 \cdot 2 \cdot 2 \cdot 2) \cdot 3 \cdot 5 \cdot x^7 y^9}$$

$$2xy^2 \sqrt[4]{3 \cdot 5x^3y}$$

$$2xy^2 \sqrt[4]{15x^3y}$$



$$\textcircled{6} (x^{33}y^6z^{50}w^{18})^{1/5}$$

$$\sqrt[5]{x^{33}y^6z^{50}w^{18}}$$

$$x^6y^1z^{10}w^3 \sqrt[5]{x^3yw^3}$$

$$x^6y^1z^{10}w^3 \sqrt[5]{x^3yw^3}$$

Add or Subtract.

$$\sqrt{x+y} \neq \sqrt{x} + \sqrt{y}$$

$$\textcircled{1} \quad \begin{array}{r} 9\sqrt{10} - 13\sqrt{5} + 6\sqrt{10} + 8\sqrt{5} \\ \hline 15\sqrt{10} - 5\sqrt{5} \end{array} \quad \begin{array}{l} 2x+3y \\ 2x+3x \\ \hline 5x \end{array}$$

$$\textcircled{2} \quad \sqrt{63} + \sqrt{7}$$

$$\begin{array}{r} 63 \\ \wedge \\ 3 \quad 21 \\ \quad \wedge \\ \quad 3 \quad 7 \end{array}$$

$$\sqrt{3 \cdot 3 \cdot 7} + \sqrt{7}$$

$$3\sqrt{7} + \sqrt{7}$$

$$4\sqrt{7}$$

$$\textcircled{3} \quad \sqrt{18} - \sqrt{32} + \sqrt{98}$$

$$\begin{array}{r} 18 \\ \wedge \\ 2 \quad 9 \\ \quad \wedge \\ \quad 3 \quad 3 \end{array} \quad \begin{array}{r} 32 \\ \wedge \\ 2 \quad 16 \\ \quad \wedge \\ \quad 2 \quad 8 \\ \quad \quad \wedge \\ \quad \quad 2 \quad 4 \\ \quad \quad \quad \wedge \\ \quad \quad \quad 2 \quad 2 \end{array} \quad \begin{array}{r} 98 \\ \wedge \\ 2 \quad 49 \\ \quad \wedge \\ \quad 7 \quad 7 \end{array}$$

$$\sqrt{2 \cdot 3 \cdot 3} - \sqrt{2 \cdot 2 \cdot 2 \cdot 2} + \sqrt{2 \cdot 7 \cdot 7}$$

$$3\sqrt{2} - 2 \cdot 2\sqrt{2} + 7\sqrt{2}$$

$$3\sqrt{2} - 4\sqrt{2} + 7\sqrt{2}$$

$$6\sqrt{2}$$