8.4 Adding and Subtracting Radical Expressions

Objective

- **Simplify radical expressions involving addition and subtraction**

A Bit of a Review

$5\sqrt{48}$

$7\sqrt[3]{54}$

$6\sqrt[4]{512}$

Example 1

Add or subtract to simplify each radical expression. Assume that all variables represent positive real numbers.

- $3\sqrt{5} + 7\sqrt{5}$
- $2\sqrt{11} - \sqrt{11} + 3\sqrt{44}$

Example 1 (continued)

- $5\sqrt{12y} + 6\sqrt{75y}$
- $9\sqrt{5} - 4\sqrt{10}$

Example 2

Add or subtract to simplify each radical expression. Assume that all variables represent positive real numbers.

- $-2\sqrt[4]{32} - 7\sqrt[4]{162}$
- $\sqrt[3]{p^4q^7} - \sqrt[3]{64pq}$

Example 2 (continued)

$$6\sqrt[3]{16z^7} + 4\sqrt{200z^5}$$

Example 3

Perform the indicated operations. Assume that all variables represent positive real numbers.

$$2\sqrt{\frac{32}{36}} + 2\frac{\sqrt{27}}{\sqrt{108}}$$

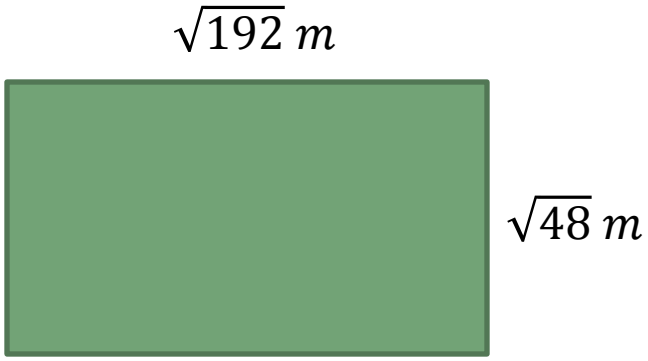
Example 3 (continued)

$$\sqrt{\frac{80}{y^4}} + \sqrt{\frac{81}{y^{10}}}$$

Example 4

Solve each problem. Give answers as simplified radical expressions.

- What is the perimeter of the rectangle?



Example 4

Solve each problem. Give answers as simplified radical expressions.

- Find the area of the trapezoid.