Warm-Up
Simplify.

(a) $\sqrt{32}$

$$= \sqrt{16 \cdot 2}$$
$$= 4\sqrt{2}$$

(b) $\sqrt{3} \cdot 2\sqrt{12}$

$$= 2\sqrt{36}$$
$$= 2 \cdot 6$$
$$= 12$$

(c) $\dfrac{2}{\sqrt{5}}$

$$= \frac{2}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}}$$
$$= \frac{2\sqrt{5}}{5}$$

(d) $7\sqrt{5} - \sqrt{45}$

$$= 7\sqrt{5} - \sqrt{9 \cdot 5}$$
$$= 7\sqrt{5} - 3\sqrt{5}$$
$$= 4\sqrt{5}$$

Example 1. Solve a Radical Equation
Solve.

(a) $2\sqrt{x} - 8 = 0$

$$2\sqrt{x} = 8$$
$$\sqrt{x} = 4$$
$$x = 16$$

(b) $12\sqrt{x} - 3 = 0$

$$12\sqrt{x} = 3$$
$$\sqrt{x} = \frac{3}{12}$$
$$\sqrt{x} = \frac{1}{4}$$
$$x = \frac{1}{16}$$

(c) $\sqrt{x} + 6 = 0$

$$\sqrt{x} = -6$$
No Solution

(d) $4\sqrt{x-7} + 12 = 28$

$$4\sqrt{x-7} = 16$$
$$\sqrt{x-7} = 4$$
$$x - 7 = 16$$
$$x = 23$$

Try It!
Solve.

(a) $\sqrt{x} - 3 = 5$

$\sqrt{x} = 8$

$x = 64$

(b) $3\sqrt{x} - 6 = 0$

$3\sqrt{x} = 6$

$\sqrt{x} = 2$

$x = 4$

(c) $\sqrt{x-5} + 7 = 12$

$\sqrt{x-5} = 5$

$x - 5 = 25$

$x = 30$

(d) $2\sqrt{x} + 8 = 0$

$2\sqrt{x} = -8$

$\sqrt{x} = -4$

No Real Solution

Example 2. Solve an Equation with Radicals on Both Sides
Solve.

(a) $\sqrt{3x-17} = \sqrt{x+21}$

$3x - 17 = x + 21$

$2x = 38$

$x = 19$

(b) $\sqrt{x+4} = \sqrt{2x-1}$

$x + 4 = 2x - 1$

$5 = x$

$x = 5$

Homework:

New: Pg. 732 #3-13

Review:
Simplify the expression.

1. $\sqrt{98}$

$= \sqrt{49 \cdot 2}$

$= 7\sqrt{2}$

2. $\sqrt{40}$

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

$= 2\sqrt{10}$

3. $\sqrt{7} \cdot \sqrt{21}$

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

$= 7\sqrt{3}$

4. $\dfrac{1}{\sqrt{5}}$

$= \dfrac{\sqrt{5}}{5}$