

## 4

## CHAPTER REVIEW

4.4 Solve  $ax^2 + bx + c = 0$  by Factoring

pp. 259–264

## EXAMPLE

Solve  $-30x^2 + 9x + 12 = 0$ .

$$-30x^2 + 9x + 12 = 0$$

Write original equation.

$$10x^2 - 3x - 4 = 0$$

Divide each side by  $-3$ .

$$(5x - 4)(2x + 1) = 0$$

Factor.

$$5x - 4 = 0 \quad \text{or} \quad 2x + 1 = 0$$

Zero product property

$$x = \frac{4}{5} \quad \text{or} \quad x = -\frac{1}{2}$$

Solve for  $x$ .

## EXERCISES

Solve the equation.

22.  $16 = 38r - 12r^2$

23.  $3x^2 - 24x - 48 = 0$

24.  $20a^2 - 13a - 21 = 0$

## EXAMPLE 5

on p. 261

for Exs. 22–24

## 4.5 Solve Quadratic Equations by Finding Square Roots

pp. 266–271

## EXAMPLE

Solve  $4(x - 7)^2 = 80$ .

$$4(x - 7)^2 = 80$$

Write original equation.

$$(x - 7)^2 = 20$$

Divide each side by 4.

$$x - 7 = \pm\sqrt{20}$$

Take square roots of each side.

$$x = 7 \pm 2\sqrt{5}$$

Add 7 to each side and simplify.

## EXERCISES

Solve the equation.

25.  $3x^2 = 108$

26.  $5y^2 + 4 = 14$

27.  $3(p + 1)^2 = 81$

28. **GEOGRAPHY** The total surface area of Earth is 510,000,000 square kilometers. Use the formula  $S = 4\pi r^2$ , which gives the surface area of a sphere with radius  $r$ , to find the radius of Earth.

## EXAMPLES

3 and 4

on pp. 267–268

for Exs. 25–28

## 4.6 Perform Operations with Complex Numbers

pp. 275–282

## EXAMPLE

Write  $(6 - 4i)(1 - 3i)$  as a complex number in standard form.

$$(6 - 4i)(1 - 3i) = 6 - 18i - 4i + 12i^2$$

Multiply using FOIL.

$$= 6 - 22i + 12(-1)$$

Simplify and use  $i^2 = -1$ .

$$= -6 - 22i$$

Write in standard form.