

PREVIEW

What's the chapter about?

Chapter 9 is about **solving quadratic equations and graphing quadratic functions**, many of which model real-life applications. In Chapter 9 you'll learn

- how to evaluate and approximate square roots.
- how to simplify radicals.
- how to solve a quadratic equation.
- how to sketch the graph of a quadratic function and a quadratic inequality.

KEY VOCABULARY

► Review

- linear equation, p. 133
- x-intercept, p. 218
- exponential growth, p. 477
- exponential decay, p. 484

► New

- square root, p. 503
- irrational number, p. 504
- radical expression, p. 504
- quadratic equation, p. 505

- quadratic function, p. 518
- parabola, p. 518
- roots, p. 526
- discriminant, p. 541
- quadratic inequalities, p. 548

PREPARE

Are you ready for the chapter?

**SKILL REVIEW** Do these exercises to review key skills that you'll apply in this chapter. See the given **reference page** if there is something you don't understand.

**Evaluate the expression.** (Review pp. 94 and 109)

- $3x^2 - 108$  when  $x = -4$
- $8x^2 \div \frac{2}{3}$  when  $x = -1$
- $x^2 - 4xy$  when  $x = -2$  and  $y = 5$
- $-\frac{x}{2y}$  when  $x = 12$  and  $y = -3$

**Use a table of values to graph the equation.** (Review Examples 2 and 3, pp. 211–212)

- $y = \frac{1}{2}x + 3$
- $y + 3 = -2x + 2$
- $x + 7y = 14$

**Check whether the ordered pair is a solution.** (Review Example 1, p. 360)

- $3x + 4y < 5$ ,  $(-1, 2)$
- $\frac{1}{2}x - \frac{2}{3}y \geq -6$ ,  $(0, 0)$
- $6x - 2y > -8$ ,  $(2, -3)$

STUDENT HELP

► Study Tip

"Student Help" boxes throughout the chapter give you study tips and tell you where to look for extra help in this book and on the Internet.

STUDY STRATEGY

Here's a study strategy!

Explaining Ideas

Sometimes explaining things to another person can help you understand a topic better. Or, someone else's questions may point out something that you don't fully understand. Talking about math is a good way to check how well you know the material and to work through questions.