

Study Guide

PREVIEW

What's the chapter about?

Chapter 5 is about **quadratic functions, equations, and inequalities**. Many real-life situations can be modeled by quadratic functions. In Chapter 5 you'll learn

- four ways to solve quadratic equations.
- how to graph quadratic functions and inequalities.

KEY VOCABULARY

► Review

- linear equation, p. 19
- linear inequality, pp. 41, 108
- absolute value, p. 50
- linear function, p. 69
- x-intercept, p. 84
- best-fitting line, p. 101
- vertex, p. 122

► New

- quadratic function, p. 249
- parabola, p. 249
- factoring, p. 256
- quadratic equation, p. 257
- zero of a function, p. 259
- square root, p. 264
- complex number, p. 272

- completing the square, p. 282
- quadratic formula, p. 291
- discriminant, p. 293
- quadratic inequality, pp. 299, 301
- best-fitting quadratic model, p. 308

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.

Solve the equation. (Review Examples 1–3, pp. 19 and 20)

1. $3x - 5 = 0$ 2. $4(x + 6) = 12$ 3. $2x + 1 = -x + 7$

Graph the inequality. (Review Example 3, p. 109)

4. $x + y > 5$ 5. $3x - 2y \leq 12$ 6. $y \geq -2x$

Graph the function and label the vertex. (Review Example 1, p. 123)

7. $y = |x| + 2$ 8. $y = |x - 3|$ 9. $y = -2|x + 1| - 4$

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!

Troubleshoot

After you complete each lesson, look back and identify your trouble spots, such as concepts you didn't understand or homework problems you had difficulty solving. Review the material given in the lesson and try to solve any difficult problems again. If you're still having trouble, seek the help of another student or your teacher.