

## PREVIEW

## What's the chapter about?

Chapter 8 is about **exponential and logarithmic functions**. These functions are inverses of each other. In Chapter 8 you'll learn

- how to graph and use exponential, logarithmic, and logistic growth functions.
- how to use the number  $e$  and the definition and properties of logarithms.
- how to solve exponential and logarithmic equations.

## KEY VOCABULARY

### ► Review

- base, p. 11
- inverse function, p. 422

### ► New

- exponential function, p. 465

- asymptote, p. 465
- exponential growth function, p. 466
- exponential decay function, p. 474
- natural base  $e$ , p. 480

- logarithm of  $y$  with base  $b$ , p. 486
- common logarithm, p. 487
- natural logarithm, p. 487
- logistic growth function, p. 517

## 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 Example 1, p. 11; Example 1, p. 324)

- $4^{-3}$
- $\left(\frac{1}{3}\right)^2$
- $\left(\frac{3}{4}\right)^0$
- $-5^2$
- $\left(\frac{5}{2}\right)^{-1}$

Describe the end behavior of the graph of the function by completing the statements  $f(x) \rightarrow ?$  as  $x \rightarrow -\infty$  and  $f(x) \rightarrow ?$  as  $x \rightarrow +\infty$ . (Review Example 4, p. 332)

- $f(x) = 2x^3$
- $f(x) = -x^2$
- $f(x) = 4x^4$
- $f(x) = -5x^3$

Draw a scatter plot of the data. Then approximate an equation of the best-fitting line. (Review Example 2, p. 101)

10.	$x$	1	2	3	4	5	6	7	8	9	10
	$y$	2.2	2.9	3.0	4.1	4.2	4.3	4.8	5.0	5.9	5.9

## 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!

### Study Group

Form a study group. Have each group member take lessons from the chapter and summarize the important concepts and skills in those lessons. Then have each member lead a discussion on how to solve the types of problems in his or her lessons.