Chapter 7 is about **powers, roots, and radicals**. In Chapter 7 you’ll learn

- how to use rational exponents and \( n \)th roots of numbers.
- how to perform operations with and find inverses of functions.
- how to graph radical functions and solve radical equations.

### KEY VOCABULARY

**Review**
- exponent, p. 11
- relation, p. 67
- function, p. 67
- square root, p. 264

**New**
- \( n \)th root of \( a \), p. 401
- power function, p. 415
- composition, p. 416
- inverse function, p. 422
- radical function, p. 431

- measure of central tendency, p. 445
- measure of dispersion, p. 446
- box-and-whisker plot, p. 447
- histogram, p. 448
- frequency distribution, p. 448

### 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 for \( y \). (Review Example 1, p. 26)

1. \( 3x - 2y = 12 \)
2. \( x + \frac{1}{2}y = 5 \)
3. \( x = 4y - 1 \)

#### Factor the trinomial. (Review Examples 1 and 2, p. 256)

4. \( x^2 + 10x + 21 \)
5. \( x^2 + 5x - 36 \)
6. \( 2x^2 - 16x + 30 \)

#### Simplify the expression. (Review Example 2, p. 324)

7. \( (abc)^2 \)
8. \( x^5 \cdot x^{-3} \)
9. \( \left( \frac{x^2}{y} \right)^2 \)
10. \( \frac{3x \cdot 3x^2y^{-2}}{12y^3} \)

#### Perform the indicated operation. (Review Examples 1–6, pp. 338 and 339)

11. \( 5x^2(x - 8) \)
12. \( (3y - 2)^2 \)
13. \( (7x^2 + x) - (6x - 4) \)

### Quiz Yourself

After you complete a homework assignment, copy a few representative problems from the assignment on a separate piece of paper. Record the lesson number for the problems and leave space for the answers. You can use these problems to quiz yourself later, such as before a class quiz is given.