

# 6

# Rational Exponents and Radical Functions



2A.2.A

2A.2.A

a.3

2A.4.C

2A.9.F

2A.9.D

6.1 Evaluate  $n$ th Roots and Use Rational Exponents

6.2 Apply Properties of Rational Exponents

6.3 Perform Function Operations and Composition

6.4 Use Inverse Functions

6.5 Graph Square Root and Cube Root Functions

6.6 Solve Radical Equations

## Before

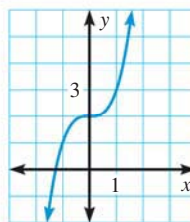
In previous chapters, you learned the following skills, which you'll use in Chapter 6: simplifying expressions involving exponents, rewriting equations, and graphing polynomial functions.

## Prerequisite Skills

### VOCABULARY CHECK

Copy and complete the statement.

1. The **square roots** of 81 are  $\underline{\quad?}$  and  $\underline{\quad?}$ .
2. In the expression  $2^5$ , the **exponent** is  $\underline{\quad?}$ .
3. For the polynomial function whose graph is shown, the sign of the **leading coefficient** is  $\underline{\quad?}$ .



### SKILLS CHECK

Simplify the expression. (Review p. 330 for 6.2.)

4.  $\frac{5x^2y}{15x^3y^{-1}}$

5.  $\frac{32x^{-3}y^4}{24x^{-3}y^{-2}} \cdot \frac{3x}{9y}$

6.  $(2x^5y^{-3})^{-3}$

Solve the equation for  $y$ . (Review p. 26 for 6.4.)

7.  $-2x - 5y = 10$

8.  $x - \frac{1}{3}y = -1$

9.  $8x - 4xy = 3$

Graph the polynomial function. (Review p. 337 for 6.5.)

10.  $f(x) = x^3 - 4x + 6$

11.  $f(x) = -x^5 + 7x^2 + 2$

12.  $f(x) = x^4 - 4x^2 + x$



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