CHAPTER REVIEW

REVIEW KEY VOCABULARY

• *n*th root of *a*, *p. 414*
• index of a radical, *p. 414*
• simplest form of a radical, *p. 422*
• like radicals, *p. 422*

• power function, *p. 428*
• composition, *p. 430*
• inverse relation, *p. 438*

• inverse function, *p. 438*
• radical function, *p. 446*
• radical equation, *p. 452*

VOCABULARY EXERCISES

1. Copy and complete: The index of the radical $\sqrt[4]{7}$ is __?__ .

2. List two different pairs of like radicals.

3. Copy and complete: A(n) __?__ function has the form $y = ax^b$ where a is a real number and b is a rational number.

4. **WRITING** *Explain* how the graph of a function and the graph of its inverse are related.

5. **WRITING** *Explain* how to use the horizontal line test to determine whether the inverse of a function f is also a function.

6. **WRITING** *Describe* how the graph of $y = \sqrt[3]{x - 4} + 5$ is related to the graph of the parent function $y = \sqrt[3]{x}$.

7. **REASONING** A student began solving the equation $x^{2/3} = 5$ by cubing each side. What will the student have to do next? What could the student have done to solve the equation in just one step?

REVIEW EXAMPLES AND EXERCISES

Use the review examples and exercises below to check your understanding of the concepts you have learned in each lesson of Chapter 6.

6.1 Evaluate *n*th Roots and Use Rational Exponents
pp. 414–419

EXAMPLE

Evaluate the expression.

a. $\left(\sqrt[4]{16}\right)^5 = 2^5 = 32$

b. $27^{-4/3} = \dfrac{1}{27^{4/3}} = \dfrac{1}{(27^{1/3})^4} = \dfrac{1}{3^4} = \dfrac{1}{81}$

EXERCISES

EXAMPLE 2
on p. 415
for Exs. 8–15

Evaluate the expression without using a calculator.

8. $81^{1/4}$

9. $0^{1/3}$

10. $\sqrt[3]{-64}$

11. $\sqrt[3]{125}$

12. $256^{3/4}$

13. $27^{-2/3}$

14. $\left(\sqrt[3]{8}\right)^7$

15. $\dfrac{1}{\left(\sqrt[5]{-32}\right)^{-3}}$