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**Additional Exercises 7.1**  
**Form I**  
Radical Expressions and Functions

Evaluate each expression or state that the expression is not a real number.

1.  $\sqrt{49}$  1. \_\_\_\_\_

2.  $\sqrt{-64}$  2. \_\_\_\_\_

3.  $\sqrt[3]{-27}$  3. \_\_\_\_\_

4.  $\sqrt[3]{64}$  4. \_\_\_\_\_

5.  $\sqrt[4]{16}$  5. \_\_\_\_\_

6.  $\sqrt[4]{-16}$  6. \_\_\_\_\_

7.  $\sqrt[6]{64}$  7. \_\_\_\_\_

8.  $\sqrt[5]{-243}$  8. \_\_\_\_\_

Simplify each expression. Include absolute value bars where necessary.

9.  $\sqrt{(-3)^2}$  9. \_\_\_\_\_

10.  $\sqrt{(x+4)^2}$  10. \_\_\_\_\_

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11.  $\sqrt[3]{(a+7)^3}$  11. \_\_\_\_\_

12.  $\sqrt[5]{m^5}$  12. \_\_\_\_\_

13.  $\sqrt{4x^2}$  13. \_\_\_\_\_

14.  $\sqrt[4]{(x+6)^4}$  14. \_\_\_\_\_

15.  $\sqrt[3]{-27x^3}$  15. \_\_\_\_\_

16.  $-\sqrt[3]{-64}$  16. \_\_\_\_\_

Find the indicated function values for each function. If the function value is not a real number and does not exist, so state.

17.  $f(x) = \sqrt{x-8}$ ;  $f(44)$  17. \_\_\_\_\_

18.  $g(x) = \sqrt{x-25}$ ;  $g(25)$  18. \_\_\_\_\_

For 19-20 find the domain of each square root function.

19.  $f(x) = \sqrt{x-7}$  19. \_\_\_\_\_

20.  $f(x) = \sqrt{2-x}$  20. \_\_\_\_\_

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**Additional Exercises 7.1**  
**Form II**  
Radical Expressions and Functions

Evaluate each expression or state that the expression is not a real number.

1.  $\sqrt{-196}$  1. \_\_\_\_\_

2.  $-\sqrt{400}$  2. \_\_\_\_\_

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

4.  $\sqrt[4]{625}$  4. \_\_\_\_\_

5.  $\sqrt[4]{-256}$  5. \_\_\_\_\_

6.  $\sqrt[3]{-1000}$  6. \_\_\_\_\_

7.  $-\sqrt[5]{-32}$  7. \_\_\_\_\_

8.  $\sqrt[4]{81}$  8. \_\_\_\_\_

Simplify each expression. Include absolute value bars where necessary.

9.  $\sqrt{(x+9)^2}$  9. \_\_\_\_\_

10.  $\sqrt[3]{(x-4)^3}$  10. \_\_\_\_\_

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11.  $\sqrt[5]{a^5 b^5}$  11. \_\_\_\_\_

12.  $\sqrt{(x-3)(x-3)}$  12. \_\_\_\_\_

13.  $\sqrt{x^2 - 8x + 16}$  13. \_\_\_\_\_

14.  $\sqrt[3]{27(x+1)^3}$  14. \_\_\_\_\_

15.  $-\sqrt{x^2 + 4x + 4}$  15. \_\_\_\_\_

16.  $\sqrt{\frac{25}{100}x^2}$  16. \_\_\_\_\_

Find the indicated function values for each function. If necessary round to two decimal places. If the function value is not a real number and does not exist, so state.

17.  $f(x) = \sqrt[3]{x^3 - 19}$ ;  $f(-2)$  17. \_\_\_\_\_

18.  $g(x) = \sqrt{x^2 + 13}$ ;  $g(-6)$  18. \_\_\_\_\_

For 19-20, find the domain of each square root function.

19.  $f(x) = \sqrt{2x + 8}$  19. \_\_\_\_\_

20.  $f(x) = \sqrt{12 - 2x}$  20. \_\_\_\_\_

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**Additional Exercises 7.1**  
**Form III**  
Radical Expressions and Functions

Evaluate each expression or state that the expression is not a real number.

1.  $\sqrt{361}$  1. \_\_\_\_\_

2.  $\sqrt[3]{-1728}$  2. \_\_\_\_\_

3.  $-\sqrt[4]{81}$  3. \_\_\_\_\_

4.  $\sqrt{121-242}$  4. \_\_\_\_\_

5.  $\sqrt{\frac{16}{25}}$  5. \_\_\_\_\_

6.  $\sqrt[3]{\frac{-8}{1000}}$  6. \_\_\_\_\_

7.  $-\sqrt[3]{-1}$  7. \_\_\_\_\_

8.  $3\sqrt{-0.125}$  8. \_\_\_\_\_

Simplify each expression. Include absolute value bars where necessary.

9.  $\sqrt{(x-8)^2}$  9. \_\_\_\_\_

10.  $\sqrt{x^2 + 10x + 25}$  10. \_\_\_\_\_

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11.  $\sqrt[3]{(x+1)^2(x+1)}$  11. \_\_\_\_\_

12.  $\sqrt[4]{81(x+3)^4}$  12. \_\_\_\_\_

13.  $\sqrt[5]{-243y^5}$  13. \_\_\_\_\_

14.  $\sqrt[3]{(-8)^3}$  14. \_\_\_\_\_

For 15-16, find the domain of each square root function.

15.  $f(x) = \sqrt{3x+18}$  15. \_\_\_\_\_

16.  $f(x) = \sqrt{14-2x}$  16. \_\_\_\_\_

Find the indicated function values for each function. If necessary round to two decimal places. If the function value is not a real number and does not exist, so state.

17.  $f(x) = \sqrt[3]{x-32}$ ;  $f(-32)$  17. \_\_\_\_\_

18.  $g(x) = \sqrt{3x^2+3x}$ ;  $g(-4)$  18. \_\_\_\_\_

19.  $h(x) = \sqrt[5]{-18x^4-15x^3+3x^2+2}$ ;  $h(-3)$  19. \_\_\_\_\_

20. The formula  $v = \sqrt{2.5r}$  models the safe maximum speed,  $v$ , in miles per hour, at which a car can travel on a curved road with a radius of curvature,  $r$ , in feet. A highway crew measures the radius of curvature at an exit ramp as 490 feet. What is the maximum safe speed? 20. \_\_\_\_\_