

## Algebra 2 Chapter 7 Review

Simplify

1.  $\sqrt{49x^2}$

2.  $\sqrt[3]{-64a^6b^9}$

3.  $\sqrt{(3p-5q)^2}$

4.  $\sqrt{4x^2+12x+9}$

5.  $\sqrt{96}$

6.  $\sqrt{50x^3y^2}$

7.  $\sqrt{6ab} \cdot \sqrt{3a}$

8.  $\sqrt[3]{\frac{5}{27}}$

9.  $\frac{15}{2\sqrt{5}}$

10.  $\frac{4}{\sqrt[4]{2}}$

11.  $\sqrt{5}(2\sqrt{10}+3\sqrt{2})$

12.  $\sqrt{4}(2\sqrt{4}-5\sqrt{2})$

13.  $5+2\sqrt{6}-3\sqrt{6}+9$

14.  $3\sqrt{27}-5\sqrt{3}+2\sqrt{48}$

15.  $7\sqrt[3]{24}+\sqrt[3]{81}$

16.  $(6+\sqrt{3})(2\sqrt{5}-\sqrt{3})$

17.  $(\sqrt{2}-\sqrt{3})(\sqrt{2}+\sqrt{3})$

18.  $\frac{4-\sqrt{3}}{1+\sqrt{3}}$

Express using rational exponents

19.  $\sqrt[4]{r^3}$

20.  $\sqrt[3]{8m^2n^7}$

Express as a single radical

21.  $5^{\frac{1}{3}}$

22.  $x^{\frac{3}{4}}$

23.  $2^{\frac{2}{3}}x^{\frac{5}{6}}y^{\frac{1}{2}}$

Evaluate or simplify **without** a calculator.

24.  $125^{\frac{1}{3}}$

25.  $4^{\frac{1}{2}}$

26.  $8^{\frac{2}{3}} \cdot 27^{\frac{2}{3}}$

27.  $(8x^{-9}y^6)^{-\frac{2}{3}}$

Solve each equation

28.  $5 - \sqrt{3x+4} = 0$

29.  $\sqrt{2x+3} + 5 = 4$

30.  $\sqrt{x^2-7} = \sqrt{4x+25}$

31.  $\sqrt[3]{5n+4} - 4 = 0$

32.  $\sqrt{x+8} - 2 = \sqrt{x}$

33.  $\sqrt{x-5} - \sqrt{x} = 1$

34.  $\sqrt[3]{5x+2} = \sqrt[3]{-8}$

35.  $x^2 - 9 = 0$

36.  $x^3 + 27 = 0$

Evaluate using your calculator.

37.  $\sqrt[3]{259} \cdot \sqrt[5]{273}$

38.  $(0.216)^{\frac{2}{3}}$

39.  $\frac{\sqrt{315}}{\sqrt[3]{2345}}$

40.

**BUSINESS** A company that produces DVDs uses the formula  $C = 88n^{\frac{1}{3}} + 330$  to calculate the cost  $C$  in dollars of producing  $n$  DVDs per day. What is the company's cost to produce 150 DVDs per day? Round your answer to the nearest dollar.

41.

**ELECTRICITY** The amount of current in amperes  $I$  that an appliance uses can be calculated using the formula  $I = \left(\frac{P}{R}\right)^{\frac{1}{2}}$ , where  $P$  is the power in watts and  $R$  is the resistance in ohms. How much current does an appliance use if  $P = 500$  watts and  $R = 10$  ohms? Round your answer to the nearest tenth.

42. If  $f(x) = 3x + 7$  and  $g(x) = 2x - 5$ , what is  $[g \circ f](-3)$ ?

43. If  $f(x) = x^2$  and  $g(x) = 3x - 1$ , what is  $f(g(x))$ ?

44. If  $f(x) = \{(3, 2), (4, -5)\}$  and  $g(x) = \{(11, 3), (1, 4)\}$ , what is  $[f \circ g](x)$ ?

45. Find the inverse of the relation  $\{(-2, 5), (0, 4), (1, -8), (4, 7)\}$

46. Find the inverse of the function  $f(x) = 4x - 2$

47. Determine whether  $g(x) = 3x - 6$  and  $f(x) = \frac{1}{3}x + 2$  are inverses.

Support your answer by using composition of functions.

48. State the domain and range of  $y = 2 + \sqrt{x - 3}$

49. Graph:  $y \leq 2 + \sqrt{x - 3}$

50. Graph the inverse relation of the given graph.

