

**LESSON**  
**6.2****Practice B***For use with pages 420–427***Simplify the expression using the properties of radicals and rational exponents.**

1.  $7^{1/3} \cdot 7^{4/3}$

2.  $\frac{4^{2/3}}{4^{1/3}}$

3.  $(6^{2/3})^{3/4}$

4.  $5^{1/4} \cdot 3^{1/4}$

5.  $\sqrt[4]{2} \cdot \sqrt[4]{8}$

6.  $\frac{\sqrt[4]{192}}{\sqrt[4]{6}}$

7.  $\frac{11}{\sqrt[4]{11}}$

8.  $\sqrt[3]{7} \cdot \sqrt[3]{49}$

9.  $(3^{3/2})^2$

10.  $\left(\frac{54}{64}\right)^{1/3}$

11.  $\frac{\sqrt[4]{32}}{\sqrt[4]{2}}$

12.  $\frac{\sqrt[5]{5}}{\sqrt[5]{27}}$

**Simplify the expression. Assume all variables are positive.**

13.  $x^{5/3} \cdot x^{4/3}$

14.  $\sqrt{x^{2/5}}$

15.  $(x^{1/2})^{2/7}$

16.  $\left(\frac{x^2}{27}\right)^{1/3}$

17.  $\sqrt[3]{16x^4}$

18.  $(x^{-3})^{2/5}$

19.  $\frac{x^{7/5}}{x^{4/5}}$

20.  $\frac{\sqrt[3]{64x^3y}}{4x^{-3}y}$

21.  $x^5 \cdot x^{\sqrt{3}}$

22.  $(x^{\sqrt{2}})^{3\sqrt{2}}$

23.  $\frac{x^{4\sqrt{3}}}{2x^{2\sqrt{3}}}$

24.  $(\sqrt[3]{x^4} \cdot \sqrt{x^5})^{-2}$

**Perform the indicated operation. Assume all variables are positive.**

25.  $6\sqrt[3]{5} + 2\sqrt[3]{5}$

26.  $5\sqrt{5} - \sqrt{45}$

27.  $2\sqrt{27} - 3\sqrt{48}$

28.  $2\sqrt{x} + 7\sqrt{x}$

29.  $3(x^{1/2}y^3)^2 - (x^3y^{18})^{1/3}$

30.  $4x^{\sqrt{3}} + x^{\sqrt{3}}$

**Write the expression in simplest form. Assume all variables are positive.**

31.  $\sqrt[4]{3x^7y^9z^3}$

32.  $\sqrt{x^3y^4z} \cdot \sqrt{xyz^4}$

33.  $\sqrt[3]{\frac{81x^2y^3}{8xy^4z}}$

**34. Circumference** The equatorial circumference of Earth is  $4.01 \times 10^4$  kilometers. One kilometer is equivalent to  $3.94 \times 10^4$  inches. What is the equatorial circumference of Earth in inches?

**35. Swimming Pool** A wooden deck and a circular swimming pool cover an area of 514.16 square feet of the lawn. The rectangular deck is 20 feet wide and 10 feet long. What is the radius of the pool?