

Practice B

For use with pages 323–328

Use the properties of exponents to evaluate the expression.

1. $(3^4)(3^{-2})$

2. $(5^2)^3$

3. $\left(\frac{2}{3}\right)^3$

4. $\frac{8^4}{8^6}$

5. $(7^6)(7^{-6})$

6. $\frac{4 \cdot 4^3}{4^6}$

7. $\frac{(3^2)^5}{3^8}$

8. $\left(\frac{1}{2}\right)^{-4}$

9. $\frac{5^6}{(5^3)^2}$

Simplify the expression.

10. $x^3 \cdot x^2$

11. $\frac{2y^3}{y^5}$

12. $(3x)^2$

13. $\left(\frac{y}{2}\right)^3$

14. $(4x^3)^4$

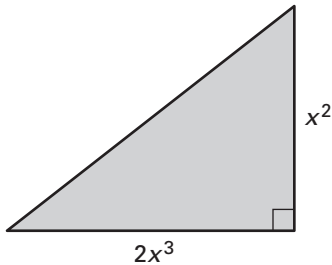
15. x^0y^{-2}

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

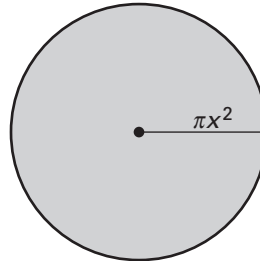
17. $\frac{-3xy}{9x^3y^{-4}}$

18. $\frac{(3x)^2}{6x^5}$

19. **Geometry** Find an expression for the area of the triangle.



20. **Geometry** Find an expression for the area of the circle.



21. **Population per Square Mile** In 1996, the population of the United States was approximately 265,280,000 people. The area of the United States is approximately 3,780,000 square miles. Use scientific notation to find the population per square mile in the United States.
22. **Speed of Mercury** Mercury travels approximately 226,000,000 miles around the sun. It takes Mercury approximately 2100 hours to revolve around the sun. Use scientific notation to find the speed of Mercury as it revolves around the sun.
23. **Computers per 1000 People** The population of the United States is approximately 265,280 thousand people. It is estimated that by the year 2000, there will be 154,000,000 computers in the United States. How many computers will there be per 1000 people?