Name _____ Date _____

LESSON 8.3

Practice B

For use with pages 502–508

Evaluate the expression.

1. 3^{-5} **2.** 10^{-3} **3.** $(-2)^{-6}$

4. 5^{0} **5.** $(-6)^{0}$ **6.** $\left(\frac{4}{3}\right)^{0}$

7. $\left(\frac{5}{8}\right)^{-2}$ **8.** $\left(\frac{7}{4}\right)^{3}$ **9.** 0^{-5}

10. $10^{-2} \cdot 10^{-3}$ **11.** $4^{-6} \cdot 4^{3}$ **12.** $\frac{1}{5^{-4}}$

Simplify the expression. Write your answer using only positive exponents.

13. x^{-7} **14.** $6y^{-4}$ **15.** $(2b)^{-5}$

16. $(-3m)^{-4}$ **17.** $a^{2}b^{-4}$ **18.** $3x^{-2}y^{-5}$

19. $(4x^{-4}y^{2})^{-3}$ **20.** $(8mn^{3})^{0}$ **21.** $\frac{c^{-3}}{d^{-5}}$

22. $\frac{x^{2}}{y^{-4}}$ **23.** $\frac{x^{-6}}{4y^{5}}$ **24.** $\frac{1}{3x^{-3}y^{-7}}$

25. Paper A sheet of 67-pound paper has a thickness of 100^{-1} inch.

a. Write and evaluate an expression for the total thickness of 5 sheets of 67-pound paper.

b. Write and evaluate an expression for the total thickness of 2^{3} sheets of 67-pound paper.

26. Frogs A frog egg currently has a radius of 5^{-1} centimeter. Write an expression using positive exponents for the volume of the frog egg. Use the formula for the volume of a sphere $V = \frac{4}{3}\pi r^{3}$.

27. Metric System The metric system has names for very small lengths.

a. One micrometer is 10^{3} times the length of one nanometer. One nanometer is 10^{-9} meter. Write one micrometer in meters.

b. One femtometer is 10^{3} times the length of one attometer. One attometer is 10^{-18} meter. Write one femtometer in meters.

c. One centimeter is 10^{10} times the length of one picometer. One picometer is 10^{-12} meter. Write one centimeter in meters.