

**LESSON**  
**7.3****Practice B***For use with the lesson "Define and Use Zero and Negative Exponents"***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.  $a^2b^{-4}$

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.

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

- One micrometer is  $10^3$  times the length of one nanometer. One nanometer is  $10^{-9}$  meter. Write one micrometer in meters.
- One femtometer is  $10^3$  times the length of one attometer. One attometer is  $10^{-18}$  meter. Write one femtometer in meters.
- One centimeter is  $10^{10}$  times the length of one picometer. One picometer is  $10^{-12}$  meter. Write one centimeter in meters.