

**LESSON**  
**8.3**
**Practice A**
*For use with pages 502–508*
**Match the equivalent expressions.**

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

2.  $2^{-2} \cdot 3^{-2}$

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

A.  $\frac{1}{36}$

B.  $\frac{4}{9}$

C.  $\frac{9}{4}$

**Evaluate the expression.**

4.  $5^{-3}$

5.  $8^{-2}$

6.  $2^{-5}$

7.  $(-3)^{-4}$

8.  $(-9)^{-1}$

9.  $6^0$

10.  $(-5)^0$

11.  $\left(\frac{1}{2}\right)^0$

12.  $\left(\frac{1}{6}\right)^{-2}$

13.  $\left(\frac{3}{4}\right)^{-1}$

14.  $\left(\frac{2}{5}\right)^{-3}$

15.  $0^{-2}$

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

16.  $x^{-5}$

17.  $m^{-9}$

18.  $6y^{-3}$

19.  $8a^{-10}$

20.  $(3b)^{-4}$

21.  $x^3y^{-2}$

22.  $x^{-4}y^3$

23.  $a^{-1}b^{-2}$

24.  $2x^{-3}y^1$

25. **Finger Thickness** Your friend tells you that her finger is  $\left(\frac{4}{3}\right)^{-1}$  inch thick. Evaluate the expression that represents the thickness of your friend's finger.
26. **Floor Tile** The minimum recommended width of the space between 6-inch by 6-inch tiles is  $2^{-2}$  inch and the maximum recommended width is  $2^{-1}$  inch. Simplify the expressions for the minimum and maximum widths of the space between the 6-inch by 6-inch floor tiles.
27. **Hole Punch** Your hole punch makes holes in your paper that have a diameter of  $4^{-1}$  inch.
- Write an expression for the area of one punched hole. Use the formula for the area of a circle  $A = \pi r^2$ .
  - Your hole punch makes three holes in a page. Write an expression for the total area punched out of one sheet of paper.