

**Practice B**

For use with pages 462–468

Use the quotient of powers property to simplify the expression.

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

2.  $\frac{8^7}{8^9}$

3.  $\frac{x^{15}}{x^9}$

4.  $\frac{b^8}{b^{12}}$

5.  $\frac{y^6}{y^0}$

6.  $\frac{(-3)^7}{(-3)^3}$

7.  $\frac{6^2 \cdot 6^{11}}{6^{16}}$

8.  $\frac{x^{-8}}{x^{-5} \cdot x^{-4}}$

Use the power of a quotient property to simplify the expression.

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

10.  $\left(\frac{5}{6}\right)^2$

11.  $\left(\frac{4}{x}\right)^5$

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

13.  $\left(\frac{7}{5}\right)^{-2}$

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

15.  $\left(\frac{x^6}{y^3}\right)^8$

16.  $\left(\frac{c^7}{d^{10}}\right)^4$

Simplify the quotient.

17.  $\frac{2^8}{2^3}$

18.  $\frac{-4^8}{(-4)^8}$

19.  $\frac{5^{-2}}{5^{-5}}$

20.  $\frac{7^{-2} \cdot 7^6}{(7^2)^2}$

21.  $\frac{3^2 \cdot 3}{3^6}$

22.  $\left(\frac{6}{7}\right)^{-2}$

23.  $\left(\frac{12}{3}\right)^3$

24.  $\left(-\frac{3}{8}\right)^2$

Simplify the expression. Use only positive exponents.

25.  $\left(\frac{2}{x}\right)^5$

26.  $\frac{1}{x^8} \cdot x^{20}$

27.  $\left(\frac{b^{10}}{b^3}\right)^{-2}$

28.  $\frac{r^{-5} \cdot r^5}{r^3}$

29.  $\frac{(t^{-4})^9}{(t^{-4})^3}$

30.  $\frac{(a^6 \cdot a^3)^3}{a^7}$

31.  $\left(\frac{7x^{-2}y}{x^8y^{-5}}\right)^3$

32.  $\frac{-10xy^8}{2x^4y^2} \cdot \frac{-5xy^{-2}}{(-y)^3}$

33.  $\left(\frac{3x^7y^9}{5x^5y^2}\right)^{-4}$

34.  $\frac{3xy^4}{2x^5y} \cdot \frac{6x^{-3}y^2}{4y}$

35.  $\frac{2x^2y}{x^3y^2} \cdot \frac{4x^7y^2}{2x^3}$

36.  $\left(\frac{4x^2y^{-1}}{6xy}\right)^{-3} \cdot \frac{y^4}{x^6y^2}$

**Memory** In Exercises 37 and 38, use the following information.

Suppose that you memorize a list of 100 German vocabulary words. Each week you forget  $\frac{1}{8}$  of the words you knew the previous week. The number of vocabulary words  $V$  you remember after  $t$  weeks can be modeled by

$$V = 100\left(\frac{7}{8}\right)^t$$

37. Complete the table showing the number of words you remember each week.

<b>Week, <math>t</math></b>	0	5	10	15	20	25	30
<b>Words, <math>V</math></b>							

38. Find the ratio of the number of words you remember in week 10 to the number of words you remember in week 25 without using the table.