

## GUIDED PRACTICE

SEE EXAMPLE 1

p. 447

1. **Medicine** A typical virus is about  $10^{-7}$  m in size. Simplify this expression.

SEE EXAMPLE 2

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Simplify.

2.  $6^{-2}$       3.  $3^0$       4.  $-5^{-2}$       5.  $3^{-3}$       6.  $1^{-8}$   
 7.  $-8^{-3}$       8.  $10^{-2}$       9.  $(4.2)^0$       10.  $(-3)^{-3}$       11.  $4^{-2}$

SEE EXAMPLE 3

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Evaluate each expression for the given value(s) of the variable(s).

12.  $b^{-2}$  for  $b = -3$       13.  $(2t)^{-4}$  for  $t = 2$   
 14.  $(m - 4)^{-5}$  for  $m = 6$       15.  $2x^0y^{-3}$  for  $x = 7$  and  $y = -4$

SEE EXAMPLE 4

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Simplify.

16.  $4m^0$       17.  $3k^{-4}$       18.  $\frac{7}{r^{-7}}$       19.  $\frac{x^{10}}{d^{-3}}$   
 20.  $2x^0y^{-4}$       21.  $\frac{f^{-4}}{g^{-6}}$       22.  $\frac{c^4}{d^{-3}}$       23.  $p^7q^{-1}$

## PRACTICE AND PROBLEM SOLVING

## Independent Practice

For Exercises	See Example
24	1
25-36	2
37-42	3
43-57	4

## Extra Practice

Skills Practice p. 516  
 Application Practice p. 534

24. **Biology** One of the smallest bats is the northern blossom bat, which is found from Southeast Asia to Australia. This bat weighs about  $2^{-1}$  ounce. Simplify this expression.

Simplify.

25.  $8^0$       26.  $5^{-4}$       27.  $3^{-4}$       28.  $-9^{-2}$   
 29.  $-6^{-2}$       30.  $7^{-2}$       31.  $\left(\frac{2}{5}\right)^0$       32.  $13^{-2}$   
 33.  $(-3)^{-1}$       34.  $(-4)^2$       35.  $\left(\frac{1}{2}\right)^{-2}$       36.  $-7^{-1}$

Evaluate each expression for the given value(s) of the variable(s).

37.  $x^{-4}$  for  $x = 4$       38.  $\left(\frac{2}{3}v\right)^{-3}$  for  $v = 9$   
 39.  $(10 - d)^0$  for  $d = 11$       40.  $10m^{-1}n^{-5}$  for  $m = 10$  and  $n = -2$   
 41.  $(3ab)^{-2}$  for  $a = \frac{1}{2}$  and  $b = 8$       42.  $4w^v x^v$  for  $w = 3$ ,  $v = 0$ , and  $x = -5$

Simplify.

43.  $k^{-4}$       44.  $2z^{-8}$       45.  $\frac{1}{2b^{-3}}$       46.  $c^{-2}d$       47.  $-5x^{-3}$   
 48.  $4x^{-6}y^{-2}$       49.  $\frac{2f^0}{7g^{-10}}$       50.  $\frac{r^{-5}}{s^{-1}}$       51.  $\frac{s^5}{t^{-12}}$       52.  $\frac{3w^{-5}}{x^{-6}}$   
 53.  $b^0c^0$       54.  $\frac{2}{3}m^{-1}n^5$       55.  $\frac{q^{-2}r^0}{s^0}$       56.  $\frac{a^{-7}b^2}{c^3d^{-4}}$       57.  $\frac{h^3k^{-1}}{6m^2}$

