



# Practice

## 8.2 Laws of Exponents: Powers and Products

Simplify each expression.

1.  $(4y)^2$  \_\_\_\_\_
2.  $(5^2)^3$  \_\_\_\_\_
3.  $(-y^5)^4$  \_\_\_\_\_
4.  $(a^2)^5$  \_\_\_\_\_
5.  $(y^2)^3$  \_\_\_\_\_
6.  $(w^2)^2$  \_\_\_\_\_
7.  $(w^4)^6$  \_\_\_\_\_
8.  $(-8c^5)^2$  \_\_\_\_\_
9.  $(-3h^9)^3$  \_\_\_\_\_
10.  $(-y^4d^6)^8$  \_\_\_\_\_
11.  $(-c^5h^6)^3$  \_\_\_\_\_
12.  $(-15h^9k^7)^2$  \_\_\_\_\_
13.  $(k^9)^5(k^3)^2$  \_\_\_\_\_
14.  $(3y^6)^2(x^5y^2z)$  \_\_\_\_\_
15.  $(4h^3)^2(-2g^3h)^3$  \_\_\_\_\_
16.  $(14a^4b^6)^2(a^6b^3)^7$  \_\_\_\_\_

Evaluate each monomial for  $x = 5$ ,  $y = -1$ , and  $z = -4$ .

17.  $y^4$  \_\_\_\_\_
18.  $3x^3$  \_\_\_\_\_
19.  $2y^2$  \_\_\_\_\_
20.  $z^2$  \_\_\_\_\_
21.  $(yz)^2$  \_\_\_\_\_
22.  $(yx)^2$  \_\_\_\_\_
23.  $x^2z^2$  \_\_\_\_\_
24.  $y^x$  \_\_\_\_\_
25.  $-y^x$  \_\_\_\_\_

26. What is the area of a square if each edge of the square has a length of  $3a^5$ ?

\_\_\_\_\_

27. What is the area of a rectangle if one side has a length of  $12x^3$  and the other side has a length of  $6x^2$ ?

\_\_\_\_\_

Find the volume of the cube for each edge length,  $e$ .

28.  $e = 5y^4$  \_\_\_\_\_

29.  $e = 3x^7y^5$  \_\_\_\_\_

