

## 8-1

# Skills Practice

## Multiplying Monomials

**Simplify.**

7.  $a^2(a^3)(a^6)$

8.  $x(x^2)(x^7)$

9.  $(y^2z)(yz^2)$

10.  $(\ell^2k^2)(\ell^3k)$

11.  $(e^2f^4)(e^2f^2)$

12.  $(cd^2)(c^3d^2)$

13.  $(2x^2)(3x^5)$

14.  $(5a^7)(4a^2)$

15.  $(4xy^3)(3x^3y^5)$

16.  $(7a^5b^2)(a^2b^3)$

17.  $(-5m^3)(3m^8)$

18.  $(-2c^4d)(-4cd)$

19.  $(10^2)^3$

20.  $(p^3)^{12}$

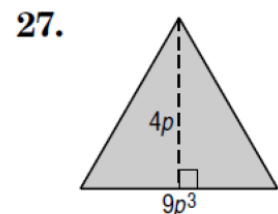
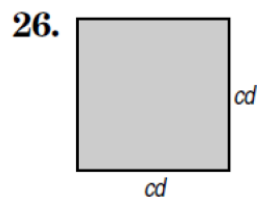
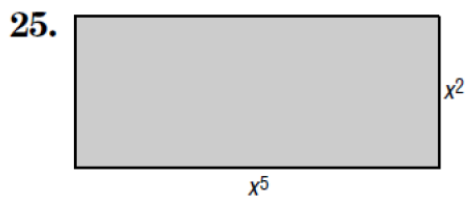
21.  $(-6p)^2$

22.  $(-3y)^3$

23.  $(3pq^2)^2$

24.  $(2b^3c^4)^2$

**GEOMETRY** Express the area of each figure as a monomial.



**8-2****Skills Practice*****Dividing Monomials***

**Simplify. Assume that no denominator is equal to zero.**

1.  $\frac{6^5}{6^4}$

2.  $\frac{9^{12}}{9^8}$

3.  $\frac{x^4}{x^2}$

4.  $\frac{r^3s^2}{r^3s^4}$

5.  $\frac{m}{m^3}$

6.  $\frac{9d^7}{3d^6}$

7.  $\frac{12n^5}{36n}$

8.  $\frac{w^4u^3}{w^4u}$

9.  $\frac{a^3b^5}{ab^2}$

10.  $\frac{m^7n^2}{m^3n^2}$

11.  $\frac{-21w^5u^2}{7w^4u^5}$

12.  $\frac{32x^3y^2z^5}{-8xyz^2}$

## 8-2 Practice

### Dividing Monomials

Simplify. Assume that no denominator is equal to zero.

1.  $\frac{8^8}{8^4}$

2.  $\frac{a^4b^6}{ab^3}$

3.  $\frac{xy^2}{xy}$

4.  $\frac{m^5np}{m^4p}$

5.  $\frac{5c^2d^3}{-4c^2d}$

6.  $\frac{8y^7z^6}{4y^6z^5}$

7.  $\left(\frac{4f^3g}{3h^6}\right)^3$

8.  $\left(\frac{6w^5}{7p^6s^3}\right)^2$

9.  $\frac{-4c^2}{24c^5}$

10.  $x^3(y^{-5})(x^{-8})$

11.  $p(q^{-2})(r^{-3})$

12.  $12^{-2}$

13.  $\left(\frac{3}{7}\right)^{-2}$

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

15.  $\frac{22r^3s^2}{11r^2s^{-3}}$

16.  $\frac{-15w^0u^{-1}}{5u^3}$

17.  $\frac{8c^3d^2f^4}{4c^{-1}d^2f^{-3}}$

18.  $\left(\frac{x^{-3}y^5}{4^{-3}}\right)^0$

19.  $\frac{6f^{-2}g^3h^5}{54f^{-2}g^{-5}h^3}$

20.  $\frac{-12t^{-1}u^5v^{-4}}{2t^{-3}uv^5}$

21.  $\frac{r^4}{(3r)^3}$

22.  $\frac{m^{-2}n^{-5}}{(m^4n^3)^{-1}}$

23.  $\frac{(j^{-1}k^3)^{-4}}{j^3k^3}$

24.  $\frac{(2a^{-2}b)^{-3}}{5a^2b^4}$

**Evaluate. Express each result in scientific and standard notation.**

1.  $(3.1 \times 10^7)(2 \times 10^{-5})$

2.  $(5 \times 10^{-2})(1.4 \times 10^{-4})$

3.  $(3 \times 10^3)(4.2 \times 10^{-1})$

4.  $(3 \times 10^{-2})(5.2 \times 10^9)$

5.  $(2.4 \times 10^2)(4 \times 10^{-10})$

6.  $(1.5 \times 10^{-4})(7 \times 10^{-5})$

7.  $\frac{5.1 \times 10^6}{1.5 \times 10^2}$

8.  $\frac{7.2 \times 10^{-5}}{4 \times 10^{-3}}$

**Evaluate. Express each result in scientific and standard notation.**

21.  $(5 \times 10^{-2})(2.3 \times 10^{12})$

22.  $(2.5 \times 10^{-3})(6 \times 10^{15})$

23.  $(3.9 \times 10^3)(4.2 \times 10^{-11})$

24.  $(4.6 \times 10^{-4})(3.1 \times 10^{-1})$

25.  $\frac{3.12 \times 10^3}{1.56 \times 10^{-3}}$

26.  $\frac{6.72 \times 10^3}{4.2 \times 10^8}$

27.  $\frac{1.17 \times 10^2}{5 \times 10^{-1}}$

28.  $\frac{1.82 \times 10^5}{9.1 \times 10^7}$

29.  $\frac{1.68 \times 10^4}{8.4 \times 10^{-4}}$

30.  $\frac{2.015 \times 10^{-3}}{3.1 \times 10^2}$

**31. BIOLOGY** A cubic millimeter of human blood contains about  $5 \times 10^6$  red blood cells. An adult human body may contain about  $5 \times 10^6$  cubic millimeters of blood. About how many red blood cells does such a human body contain?

**32. POPULATION** The population of Arizona is about  $4.778 \times 10^6$  people. The land area is about  $1.14 \times 10^5$  square miles. What is the population density per square mile?