

# 7-1 Skills Practice

## Multiplication Properties of Exponents

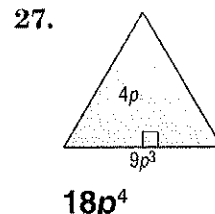
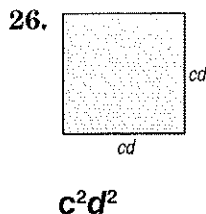
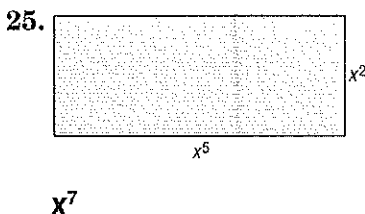
Determine whether each expression is a monomial. Write *yes* or *no*. Explain.

1.  $11$  **Yes**; 11 is a real number and an example of a constant.
2.  $a - b$  **No**; this is the difference, not the product, of two variables.
3.  $\frac{p^2}{r^2}$  **No**; this is the quotient, not the product, of two variables.
4.  $y$  **Yes**; single variables are monomials.
5.  $j^3k$  **Yes**; this is the product of two variables.
6.  $2a + 3b$  **No**; this is the sum of two monomials.

Simplify.

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| 7. $a^2(a^3)(a^6)$ $a^{11}$        | 8. $x(x^2)(x^7)$ $x^{10}$         |
| 9. $(y^2z)(yz^2)$ $y^3z^3$         | 10. $(l^2k^2)(l^3k)$ $l^5k^3$     |
| 11. $(a^2b^4)(a^2b^2)$ $a^4b^6$    | 12. $(cd^2)(c^3d^2)$ $c^4d^4$     |
| 13. $(2x^2)(3x^5)$ $6x^7$          | 14. $(5a^7)(4a^2)$ $20a^9$        |
| 15. $(4xy^3)(3x^2y^5)$ $12x^4y^8$  | 16. $(7a^5b^2)(a^2b^3)$ $7a^7b^5$ |
| 17. $(-5m^3)(3m^8)$ $-15m^{11}$    | 18. $(-2c^4d)(-4cd)$ $8c^5d^2$    |
| 19. $(10^2)^3$ $10^6$ or 1,000,000 | 20. $(p^3)^{12}$ $p^{36}$         |
| 21. $(-6p)^2$ $36p^2$              | 22. $(-3y)^3$ $-27y^3$            |
| 23. $(3pr^2)^2$ $9p^2r^4$          | 24. $(2b^3c^4)^2$ $4b^6c^8$       |

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



# 7-1 Practice

## Multiplication Properties of Exponents

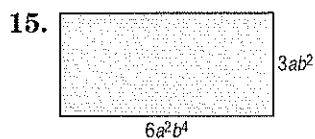
Determine whether each expression is a monomial. Write *yes* or *no*. Explain your reasoning.

- $\frac{21a^2}{7b}$  No; this involves the quotient, not the product, of variables.
- $\frac{b^3c^2}{2}$  Yes; this is the product of a number,  $\frac{1}{2}$ , and two variables.

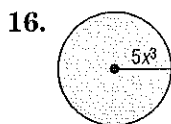
Simplify each expression.

- $(-5x^2y)(3x^4) - 15x^6y$
- $(3ad^4)(-2a^2) - 6a^3d^4$
- $(-15xy^4)\left(-\frac{1}{3}xy^3\right) 5x^2y^7$
- $(-18m^2n)^2\left(-\frac{1}{6}mn^2\right) - 54m^5n^4$
- $\left(\frac{2}{3}p\right)^2 \frac{4}{9}p^2$
- $(0.4k^3)^3 0.064k^9$
- $(2ab^2f^2)(4a^3b^2f^2) 8a^4b^4f^4$
- $(4g^3h)(-2g^5) - 8g^8h$
- $(-xy)^3(xz) - x^4y^3z$
- $(0.2a^2b^3)^2 0.04a^4b^6$
- $\left(\frac{1}{4}ad^3\right)^2 \frac{1}{16}a^2d^6$
- $[(4^2)^2] 4^8$  or 65,536

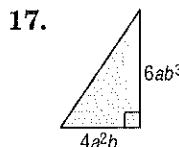
**GEOMETRY** Express the area of each figure as a monomial.



$18a^3b^6$

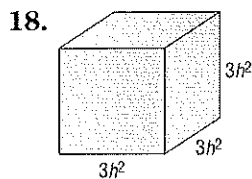


$(25x^6)\pi$

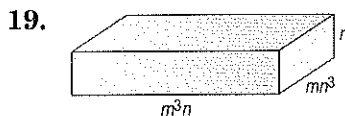


$12a^3b^4$

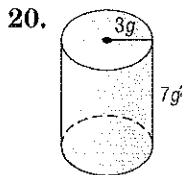
**GEOMETRY** Express the volume of each solid as a monomial.



$27h^6$



$m^4n^5$



$(63g^4)\pi$

21. **COUNTING** A panel of four light switches can be set in  $2^4$  ways. A panel of five light switches can set in twice this many ways. In how many ways can five light switches be set?  $2^5$  or 32

22. **HOBBIES** Tawa wants to increase her rock collection by a power of three this year and then increase it again by a power of two next year. If she has 2 rocks now, how many rocks will she have after the second year?  $2^6$  or 64