

# Multiplying Integers (Pages 75–79)

The product of two integers with different signs is negative. The product of two integers with the same sign is positive.

## EXAMPLES

**A** Evaluate  $-3xy$  if  $x = 2$  and  $y = -4$ .

Replace  $x$  with 2 and  $y$  with  $-4$ .

$$\begin{aligned} -3xy &= -3(2)(-4) \\ &= -6(-4) \quad -3(2) = -6 \\ &= 24 \end{aligned}$$

*Multiply. The signs are the same, so the product is positive.*

**B** Simplify  $(-4a)(2b)$ .

$$\begin{aligned} &(-4a)(2b) \\ &= (-4)(a)(2)(b) \quad -4a = (-4)(a), 2b = (2)(b) \\ &= (-4)(2)(a)(b) \quad \text{Commutative Property} \\ &= -8ab \end{aligned}$$

*Multiply. The signs are different, so the product is negative.*

## Try These Together

1. Evaluate  $6m$  if  $m = -3$ .

*HINT: The signs are different.*

2. Simplify  $-9(-5c)$ .

*HINT: The signs are the same.*

## PRACTICE

*Find each product.*

- |                  |                |                      |                     |
|------------------|----------------|----------------------|---------------------|
| 3. $8(11)$       | 4. $7(-7)$     | 5. $-9(-3)$          | 6. $-2(15)$         |
| 7. $-6(0)$       | 8. $-7(-6)$    | 9. $12(-5)$          | 10. $-3(-3)(-8)$    |
| 11. $5(-2)(-10)$ | 12. $4(6)(-2)$ | 13. $(-2)(1)(2)(-1)$ | 14. $6(-2)(-1)(-2)$ |

*Evaluate each expression if  $a = -3$  and  $b = -5$ .*

- |           |           |              |              |
|-----------|-----------|--------------|--------------|
| 15. $-4b$ | 16. $2ab$ | 17. $5(-3a)$ | 18. $6a + b$ |
|-----------|-----------|--------------|--------------|

*Simplify each expression.*

- |              |              |                  |                 |
|--------------|--------------|------------------|-----------------|
| 19. $-8(2x)$ | 20. $9(-6a)$ | 21. $(-7m)(-3n)$ | 22. $(-4x)(3y)$ |
|--------------|--------------|------------------|-----------------|



**23. Standardized Test Practice** Evaluate the expression  $-2x + 3y$  if  $x = -4$  and  $y = -6$ .

- |                |               |                |              |
|----------------|---------------|----------------|--------------|
| <b>A</b> $-26$ | <b>B</b> $24$ | <b>C</b> $-10$ | <b>D</b> $0$ |
|----------------|---------------|----------------|--------------|

Answers: 1.  $-18$  2.  $45c$  3.  $88$  4.  $-49$  5.  $27$  6.  $-30$  7.  $0$  8.  $42$  9.  $-60$  10.  $-72$  11.  $100$  12.  $-48$  13.  $4$  14.  $-24$  15.  $20$  16.  $30$  17.  $45$  18.  $-23$  19.  $-16x$  20.  $-54a$  21.  $21mn$  22.  $-12xy$  23. C