Name _____ Date _____

The Distributive Property

To multiply a sum or difference by a number, multiply each number in the sum or difference by the number outside the parentheses, then evaluate.

Distributive Property
With addition: $5(7 + 3) = 5(7) + 5(3)$ $a(b + c) = a(b) + a(c)$
With subtraction: $5(7 - 3) = 5(7) - 5(3)$ $a(b - c) = a(b) - a(c)$

Example 2   Simplify each expression.

a. $6(x + 9)$

$6(x + 9) = 6(x) + 6(9)$

$\quad = 6x + 54$

b. $10(12 + z + 7)$

$10(12 + z + 7) = 10(12) + 10(z) + 10(7)$

$\quad = 120 + 10z + 70$

$\quad = 10z + 190$

c. $16(8w - 3)$

$16(8w - 3) = 16(8w) - 16(3)$

$\quad = 128w - 48$

d. $5(4m - 3n - 1)$

$5(4m - 3n - 1) = 5(4m) - 5(3n) - 5(1)$

$\quad = 20m - 15n - 5$

Practice

Check your answers at BigIdeasMath.com.

Evaluate.

1. $25(7 + 11)$

2. $4(13 - 5)$

3. $9(16 + 7 - 8)$

4. $-4(10 - 9 - 6)$

Simplify the expression.

5. $4(y + 7)$

6. $-2(z + 5)$

7. $5(b - 11)$

8. $-8(d - 1)$

9. $12(4a + 13)$

10. $9(20 + 17m)$

11. $11(2k - 11)$

12. $-7(-2n - 9)$

13. $3(x + 4 + 9)$

14. $6(25 + 6z + 10)$

15. $8(p - 6 - 5)$

16. $-10(4 + v - 1)$

17. $7(2x + 7 + 9y)$

18. $-4(4r - s + 17)$

19. $-3(-12 - 3d - 8)$

20. $2 - 6(2n - 9)$

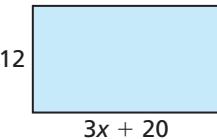**21.** $1.5(6c + 10d + 3)$

22. $\frac{3}{4}\left(q + \frac{1}{6} + \frac{7}{8}\right)$

23. $-2.4(5h - 10 + 4)$

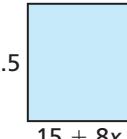**24.** $0.5(2.6x + 5.8)$

Write and simplify an expression for the area of the rectangle.

7.

12

$3x + 20$

8.

1.5

$15 + 8x$

9.

14

16    $5w$