

Worksheet: The Distributive Property

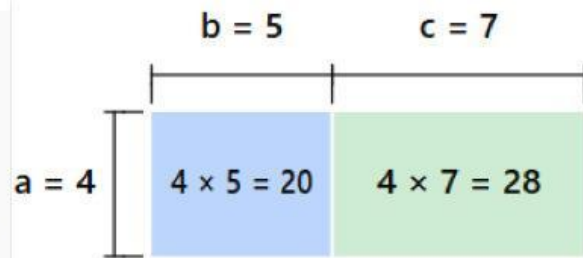
The Distributive Property

The **Distributive Property** allows you to multiply a number by everything inside parentheses.

$$a(b + c) = ab + ac$$

$$4(5 + 7) = 20 + 28 = 48$$

$a = 4$ is the shared height; $b = 5$ and $c = 7$ split the width. The colored areas 20 and 28 add to 48.



Rule:

$$a(b + c) = ab + ac \quad \text{or} \quad a(b - c) = ab - ac$$

Steps

1. Multiply the number **outside** the parentheses by the **first** term.
2. Multiply the number **outside** the parentheses by the **second** term.
3. Combine the results.

Example 1

Simplify:

$$4(x + 3)$$

Multiply 4 by each term:

$$4 \times x = 4x$$

$$4 \times 3 = 12$$

Answer:

$$4x + 12$$

Example 2

Simplify:

$$5(2y - 7)$$

Multiply 5 by each term:

$$5 \times 2y = 10y$$

$$5 \times (-7) = -35$$

Answer:

$$10y - 35$$

Example 3

Simplify:

$$-3(m + 8)$$

Multiply -3 by each term:

$$-3 \times m = -3m$$

$$-3 \times 8 = -24$$

Answer:

$$-3m - 24$$

Part A – Use the Distributive Property - Simplify each expression.

1. $3(x + 5) =$ _____

6. $4(2x + 7) =$ _____

2. $6(y + 2) =$ _____

7. $7(3m - 5) =$ _____

3. $8(a - 4) =$ _____

8. $2(6n + 4) =$ _____

4. $5(b + 9) =$ _____

9. $5(4p - 8) =$ _____

5. $9(c - 6) =$ _____

10. $3(7q + 9) =$ _____

Part B – Watch the Signs - Simplify each expression.

11. $-2(x + 6) =$ _____

12. $-5(y - 3) =$ _____

13. $-4(2m + 5) =$ _____

14. $-3(4n - 8) =$ _____

15. $-7(3a + 1) =$ _____

16. $-6(5b - 2) =$ _____

17. $-8(c + 4) =$ _____

18. $-9(2d - 5) =$ _____
