

Lesson 4 Reteach

The Distributive Property

| Distributive Property | | |
|-----------------------|---|------------------------------------|
| Words | To multiply a sum or difference by a number, multiply each term inside the parentheses by the number outside the parentheses. | |
| Symbols | $a(b + c) = ab + ac$ | $a(b - c) = ab - ac$ |
| Examples | $3(2 + 5) = 3 \cdot 2 + 3 \cdot 5$ | $6(8 - 3) = 6 \cdot 8 - 6 \cdot 3$ |

Examples

Use the Distributive Property to evaluate each expression.

1 $5(x + 3)$

$$\begin{aligned} 5(x + 3) &= 5 \cdot x + 5 \cdot 3 \\ &= 5x + 15 \end{aligned}$$

Expand using the Distributive Property
Simplify.

2 $(4x - y)9$

$$\begin{aligned} (4x - y)9 &= [4x + (-y)]9 \\ &= (4x)9 + (-y)9 \\ &= 36x + (-9y) \\ &= 36x - 9y \end{aligned}$$

Rewrite $4x - y$ as $4x + (-y)$.
Expand using the Distributive Property.
Simplify.
Definition of subtraction.

Example 3

MOVIES Alwyn is taking three of his friends to the movies. Tickets cost \$8.90 per person. Find Alwyn's total cost.

You can use the Distributive Property to find the total cost mentally.

$$\begin{aligned} 4(\$9 - \$0.10) &= 4(\$9) - 4(\$0.10) && \text{Distributive Property} \\ &= \$36 - \$0.40 && \text{Multiply.} \\ &= \$35.60 && \text{Subtract.} \end{aligned}$$

Alwyn will pay \$35.60 for himself and three friends to go to the movies.

Exercises

Use the Distributive Property to evaluate or rewrite each expression.

1. $5(w + 4)$

$$5w + 20$$

2. $(x - 5)(-2)$

$$-2x + 10$$

3. $7(6x - 2y)$

$$42x - 14y$$

4. $-6(4 + 2m)$

$$-24 - 12m$$

5. $8(2n + 7)$

$$16n + 56$$

6. $(3v + 6w)2$

$$6v + 12w$$

7. BOOKS Mariah bought 7 books costing \$11.20 each. Find the total cost of the 7 books. Justify your answer by using the Distributive Property.
\$78.40; $7(\$11 + \$0.20) = 7 \cdot \$11 + 7 \cdot \$0.20 = \$77 + \1.40