

Lesson 5-4 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 $5(x + 3)$

$$5(x + 3) = 5 \cdot x + 5 \cdot 3$$

Expand using the Distributive Property

$$= 5x + 15$$

Simplify.

2 $(4x - y)9$

$$(4x - y)9 = [4x + (-y)]9$$

Rewrite $4x - y$ as $4x + (-y)$.

$$= (4x)9 + (-y)9$$

Expand using the Distributive Property.

$$= 36x + (-9y)$$

Simplify.

$$= 36x - 9y$$

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.

$$4(\$9 - \$0.10) = 4(\$9) - 4(\$0.10)$$

Distributive Property

$$= \$36 - \$0.40$$

Multiply.

$$= \$35.60$$

Subtract.

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. $5(w + 4)$

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

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

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

5. $8(2n + 7)$

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

Lesson 4 Skills Practice - The Distributive Property

Use the Distributive Property to evaluate each expression.

1. $3(2 + 8)$

2. $(-3 + 4)2$

3. $-5(4 - 2)$

4. $(12 + 13)(-2)$

7. $(-7 + 3)4$

8. $-1(18 - 11)$

Use the Distributive Property to rewrite each expression.

9. $6(t + 2)$

10. $-5(4 + x)$

11. $(5 + v)(-3)$

12. $(w - 2)4$

15. $(4c + 2d)(-2)$

16. $-2(3f - 5g)$

17. **TRAIN RIDE** Mr. and Mrs. Caputo are taking their family into the city on the train. The cost per person is \$5.80. If there are 4 members in their family, how much does the train trip cost? Justify your answer by using the Distributive Property.