

Please do these problems in your spiral

Name the property shown by each statement.

A) $1 \cdot (a + 3) = a + 3$
MULTIPLICATIVE IDENTITY PROPERTY

B) $2p + (3q + 2) = (2p + 3q) + 2$
ASSOCIATIVE PROPERTY OF ADDITION

C) $(ab)c = c(ab)$
COMMUTATIVE PROPERTY OF MULTIPLICATION

D) $2t \cdot 0 = 0$
MULTIPLICATION PROPERTY OF ZERO

Simplify each expression. Justify each step.

E) $2d(3) = 2(3)d$ COMMUTATIVE PROPERTY OF MULTIPLICATION
 $6d$
FINAL ANSWER

F) $2y + (4 + 5y) = 2y + (5y + 4)$ ← COMMUTATIVE PROPERTY OF ADDITION
 $(2y + 5y) + 4$ ← ASSOCIATIVE PROPERTY OF ADDITION
 $7y + 4$
FINAL ANSWER

Lesson 4 - The Distributive Property

$$5x + 15x = 20x$$

COEFFICIENT $\rightarrow 5x + 15 \leftarrow$ CONSTANT
 \uparrow
 VARIABLE

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 $5(x + 3)$

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

$$= 5x + 15$$

Expand using the Distributive Property
Simplify.

$5(x+3) = 5 \cdot x + 5 \cdot 3$
 $5x + 15$
 FINAL ANSWER

2 $(4x - y)9$

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

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

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

$$= 36x - 9y$$

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

$5 \begin{array}{|c|c|} \hline x & + & 3 \\ \hline \end{array}$
 $5 \begin{array}{|c|c|} \hline 5x & 15 \\ \hline \end{array}$
 $5x + 15$
 FINAL ANSWER

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.

$6x - 2y$
 $7 \begin{array}{|c|c|} \hline 42x & 14y \\ \hline \end{array}$

Exercises

Use the Distributive Property to evaluate or rewrite each expression.

1. $5(w + 4)$
 $5w + 20$

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

3. $7(6x - 2y)$
 $42x - 14y$

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

5. $8(2n + 7)$

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.

Lesson 4 Homework Practice

The Distributive Property

$$4(12+3) = 4 \cdot 12 + 4 \cdot 3$$

$$48 + 12$$

$$60$$

$$12 + 3$$

4	48	12
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$$60$$

Use the Distributive Property to evaluate each expression.

1. $(16 - 6)2$

2. $4(12 + 3)$

3. $-3(-7 + 2)$

4. $(8 + 3)(-1)$

5. $5(7 + 3)$

6. $-2(8 - 5)$

Use the Distributive Property to rewrite each expression.

7. $(2 + g)8$

8. $4(h - 5g)$

9. $-7(5 - n)$

10. $8(2m + 1)$

11. $6x(y - z)$

12. $-3(2b - 2a)$

$$4(h - 5g)$$

$$4 \cdot h - 4 \cdot 5g$$

$$4h - 20g$$

FINAL ANSWER

4	4h	20g
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$$4h - 20g$$

13. **DINING OUT** The table shows the different prices at a diner.

a. Write two equivalent expressions for the total cost if two customers order each of the items.

b. What is the total cost for both customers?

Item	Cost (\$)
Sandwich	\$5
Drink	\$2
Dessert	\$3

14. **SUNDAES** Carmine bought 5 ice cream sundaes for his friends. If each sundae costs \$4.95, how much did he spend? Justify your answer by using the Distributive Property.