

## warm-up

Find the Product

1)  $(4)(-4)$

$$-16$$

2)  $|(-12)(2)|$

$$|-24|$$
  
$$24$$

3)  $13(-2)(-3)$

$$-26(-3)$$
  
$$78$$

Simplify the variable expression:

4)  $(7)(-x)$

$$-7x$$

5)  $-(-y)^2(y)$

$$-y \cdot y \cdot y$$
  
$$-y^3$$

6)  $3(-w^2)(2w)$

$$3 \cdot -1 \cdot w \cdot w \cdot 2 \cdot w$$
  
$$-6w^3$$

**Quiz was out of 25pts**

23.5+ A

22.5 A-

20 B-

17.5 C-

15+ Passing

**What Happened?**

**Homework Questions?**

On the top of your paper (by your name) rate yourself for this section:

**4 - I can summarize the concepts and explain it to others**

**3 - I can apply the concept to answer questions correctly**

**2 - I can apply the concepts but with some mistakes**

**1 - I need help and know how to apply the concept**

**0 - I can't apply the concept, even with help**

\*Rating of 0-2 is a warning signal to me that you need help\*

## 2.6 The Distributive Property

**Goals:** • Use the distributive property

**EQ:** What does  $a(b - c)$  turn into when you distribute?



**The Unit Organizer** NAME \_\_\_\_\_  
DATE \_\_\_\_\_ Mo/Date/Year \_\_\_\_\_

④ BIGGER PICTURE ← Algebra 9/Algebra 9 Concepts →

② LAST UNIT/Experience <b>None</b>	① CURRENT UNIT <b>Properties of Real Numbers</b>	③ NEXT UNIT/Experience <b>Solving Linear Equations</b>
⑧ Student Activities or Assignments  2.1 2.2 2.3 2.4 2.5 2.6 2.7	⑤ UNIT MAP <pre> graph TD     A((Operations with integers and variable expressions)) -- involving --&gt; B[Absolute Value]     A -- including --&gt; C[Review of Operations with Integers]     A -- Using the --&gt; D[Distributive Property]     A -- including --&gt; E[Combining Like Terms]     D --&gt; A     style D stroke:#f00,stroke-width:2px     linkStyle 4 stroke:#f00,stroke-width:2px     </pre>	⑥ UNIT RELATIONSHIPS  Simplify Calculate Compare and contrast
⑦ UNIT SELF-TEST QUESTIONS  1. How do you add, subtract, and multiply integers? 2. How do you use the distributive property to evaluate and simplify variable expressions? 3. How do you simplify a variable expression by combining like terms? 4. How can absolute value be used to evaluate expressions?		

### THE DISTRIBUTIVE PROPERTY

The product of  $a$  and  $(b + c)$ :

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

$$(b + c)a = ba + ca$$

**Example:**  $5(x + 2) = 5x + 10$

**Example:**  $(x + 4)8 = 8x + 32$

The product of  $a$  and  $(b - c)$ :

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

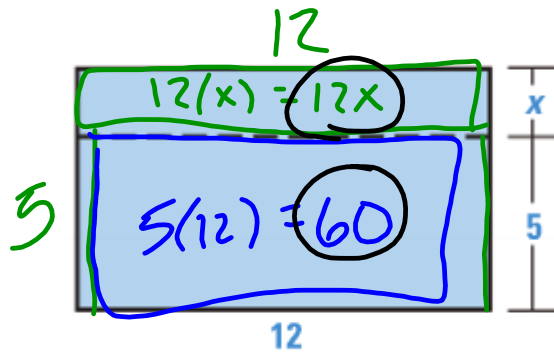
$$(b - c)a = ba - ca$$

**Example:**  $4(x - 7) = 4x - 28$

**Example:**  $(x - 5)9 = 9x - 45$

\* Whatever sign is in ( )  
you want to re-write in your  
answer

**AREA MODEL** Use the area model to find two expressions for the area of the rectangle. Then write an algebraic statement that shows the two expressions are equal.



$$12(x+5)$$

$$12x + 60$$

$$A = l \times w$$

$$A = b \times h$$

### Use the Distributive Property with Addition

Use the distributive property to rewrite the expression without parentheses.

a.  $8(x + 9)$

$$8(x) + 8(9)$$

$$8x + 72$$

b.  $(7 + y)3$

$$7(3) + y(3)$$

$$21 + 3y$$

**Use the Distributive Property with Subtraction**

Use the distributive property to rewrite the expression without parentheses.

a.  $5(x - 6)$

$$5(x) - 5(6)$$

$$5x - 30$$

$$5x - 30$$

b.  $(y - 2)3$

$$3(y) - 3(2)$$

$$3y - 6$$

**Try It**

Use the distributive property to rewrite the expression without parentheses.

1.  $4(a + 9)$

$$4a + 4(9)$$

$$4a + 36$$

2.  $6(12 + b)$

$$6(12) + 6(b)$$

$$72 + 6b$$

3.  $(c + 1)(5)$

$$5 \cdot c + 5 \cdot 1$$

$$5c + 5$$

4.  $3(a - 8)$

$$3(a) - 3(8)$$

$$3a - 24$$

$$3a - 24$$

5.  $9(3 - b)$

$$9(3) - 9(b)$$

$$27 - 9b$$

6.  $(c - 12)(3)$

$$3(c) - 3(12)$$

$$3c - 36$$

**Example 4: Use the Distributive Property**

Use the distributive property to rewrite the expression without parentheses.

$$\begin{aligned} \text{a. } & -2(x + 1) \\ & -2(x) + -2(1) \\ & -2x - 2 \end{aligned}$$

$$\begin{aligned} \text{b. } & (3 + y)(-6) \\ & -6(3) + -6(y) \\ & -18 + -6y \\ & -18 - 6y \end{aligned}$$

$$\begin{aligned} \text{c. } & -1(x - 1) \\ & -1(x) - (-1)(1) \\ & -x + 1 \end{aligned}$$

\*Note: A factor with a negative sign must multiply each term of an expression. Forgetting to distribute the negative sign to each term is a common error.

**Try It** Use the distributive property to rewrite the expression without parentheses.

$$\begin{aligned} 7. & -3(a + 3) \\ & -3(a) + (-3)(3) \\ & -3a + -9 \end{aligned}$$

$$\begin{aligned} 8. & (3 + b)(-6) \\ & -18 + -6b \end{aligned}$$

$$\begin{aligned} 9. & -1(c - 7) \\ & -c - -7 \\ & -c + 7 \end{aligned}$$

$$\begin{aligned} 10. & (5 - d)(-2) \\ & -10 - -2d \\ & -10 + 2d \end{aligned}$$

# Summary

**EQ:** What does  $a(b - c)$  turn into when you distribute?

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

## 2.6 Homework

Distributive Property Wkst

AND p.104 # 30-52 even



pg.103 #13, 17 - 49 EOO, 74-76, 88-91