# Algebra I Lesson #5 Unit 1 Class Worksheet #5 For Worksheet #6

**Multiplication by -1** 

# **Multiplication by -1**

## **Multiplication by -1**

Consider these examples.

8 · -1 =

## **Multiplication by -1**

Consider these examples.

 $8 \cdot -1 = -8$ 

# **Multiplication by -1**

$$8 \cdot -1 = -8$$
  $3 \cdot -1 =$ 

# **Multiplication by -1**

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$ 

## **Multiplication by -1**

Consider these examples.

 $8 \cdot -1 = -8$   $3 \cdot -1 = -3$   $-1 \cdot 5 =$ 

## **Multiplication by -1**

Consider these examples.

 $8 \cdot -1 = -8$   $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$ 

## **Multiplication by -1**

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 $8 \cdot -1 = -8$   $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$ 

## **Multiplication by -1**

Consider these examples.

 $8 \cdot -1 = -8$   $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 =$ 

## **Multiplication by -1**

Consider these examples.

 $8 \cdot -1 = -8$   $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:** 

## **Multiplication by -1**

**Consider these examples.** 

 $8 \cdot -1 = -8$   $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $\mathbf{x} \cdot \mathbf{-1} =$ 

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $x \cdot -1 = -x$ 

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $x \cdot -1 = -x$ 

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $\mathbf{x} \cdot -\mathbf{1} = -\mathbf{x}$  and

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $\mathbf{x} \cdot \mathbf{-1} = \mathbf{-x}$  and  $\mathbf{-1} \cdot \mathbf{x} =$ 

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $\mathbf{x} \cdot -1 = -\mathbf{x}$  and  $-1 \cdot \mathbf{x} = -\mathbf{x}$ .

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$ 

**Rule:**  $\mathbf{x} \cdot -\mathbf{1} = -\mathbf{x}$  and  $-\mathbf{1} \cdot \mathbf{x} = -\mathbf{x}$ .

## **Multiplication by -1**

Consider these examples.

$$8 \cdot -1 = -8$$
  $3 \cdot -1 = -3$   $-1 \cdot 5 = -5$   $-1 \cdot 2 = -2$   
Rule:  $x \cdot -1 = -x$  and  $-1 \cdot x = -x$ .

-x is the opposite of x.

## **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

## **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number,

## **Multiplication by -1**

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$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

## **Multiplication by -1**

Consider these examples.

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$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

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## **Multiplication by -1**

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 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

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## **Multiplication by -1**

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$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

$$-8 \cdot -1 = 8$$

#### **Multiplication by -1**

Consider these examples.

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$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

Consider these examples.

 $-8 \cdot -1 = 8$   $-3 \cdot -1 =$ 

#### **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

Consider these examples.

 $-8 \cdot -1 = 8$   $-3 \cdot -1 = 3$ 

## **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

Consider these examples.

 $-8 \cdot -1 = 8$   $-3 \cdot -1 = 3$   $-1 \cdot -5 =$ 

## **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

Consider these examples.

 $-8 \cdot -1 = 8$   $-3 \cdot -1 = 3$   $-1 \cdot -5 = 5$ 

#### **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

Consider these examples.

 $-8 \cdot -1 = 8$   $-3 \cdot -1 = 3$   $-1 \cdot -5 = 5$   $-1 \cdot -2 =$ 

## **Multiplication by -1**

Consider these examples.

8 
$$\cdot$$
 -1 = -8 3  $\cdot$  -1 = -3 -1  $\cdot$  5 = -5 -1  $\cdot$  2 = -2  
Rule: x  $\cdot$  -1 = -x and -1  $\cdot$  x = -x.

-x is the opposite of x. Don't assume that -x is negative.

If x represents a negative number, then -x is positive !!

$$-8 \cdot -1 = 8$$
  $-3 \cdot -1 = 3$   $-1 \cdot -5 = 5$   $-1 \cdot -2 = 2$ 

# Algebra I Unit 1 Other Useful Properties The Distributive Laws
# The Distributive Laws

# **The Distributive Laws**

Consider these examples.

 $3 \cdot (4+2) =$ 

# **The Distributive Laws**

Consider these examples.

 $3\cdot(4+2)=3\cdot$ 

## **The Distributive Laws**

Consider these examples.

 $3\cdot(4+2)=3\cdot 6$ 

#### **The Distributive Laws**

Consider these examples.

 $3 \cdot (4+2) = 3 \cdot 6 =$ 

#### **The Distributive Laws**

Consider these examples.

 $3 \cdot (4+2) = 3 \cdot 6 = 18$ 

# The Distributive Laws

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 =$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 +$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 =$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \lt$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \lt$ 

# The Distributive Laws

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$    
 $\checkmark$   $3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$    
 $\checkmark$   $3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$ 

 $5 \cdot (8+3) =$ 

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$    
 $\checkmark$   $3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$ 

 $5\cdot(8+3)=5\cdot$ 

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

 $5 \cdot (8+3) = 5 \cdot 11$ 

# **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

 $5 \cdot (8+3) = 5 \cdot 11 =$ 

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 =$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 35$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 =$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$   
 $5 \cdot (8+3) = 5 \cdot 11 = 55$   
and

$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
 $3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$   
 $5 \cdot (8+3) = 5 \cdot 11 = 55$   
and

$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
and
$$3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
and
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$
## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot 11 = 55$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  

$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (9+2)$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 3$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) =$$

## **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
$$5 \cdot (8+3) = 5 \cdot 8$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18$$
  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
$$5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$

# **The Distributive Laws**

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \quad \text{and} \quad 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  

$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \quad \text{and} \quad 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  

$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \quad \text{and} \quad 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

# **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$$

In general,  $\mathbf{x} \cdot$ 

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,  $\mathbf{x} \cdot (\mathbf{y} + \mathbf{z})$ 

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,  $\mathbf{x} \cdot (\mathbf{y} + \mathbf{z}) =$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,  $\mathbf{x} \cdot (\mathbf{y} + \mathbf{z}) = \mathbf{x} \cdot \mathbf{y}$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,  $\mathbf{x} \cdot (\mathbf{y} + \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} + \mathbf{z}$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$

$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,  $\mathbf{x} \cdot (\mathbf{y} + \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} + \mathbf{x} \cdot \mathbf{z}$ 

#### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  

$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  

$$5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

In general,  $\mathbf{x} \cdot (\mathbf{y} + \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} + \mathbf{x} \cdot \mathbf{z}$ 

This is the distributive law for multiplication over addition.

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4+2) = 3 \cdot 6 = 18 \iff 3 \cdot (4+2) = 3 \cdot 4 + 3 \cdot 2$$
  
and  
$$3 \cdot 4 + 3 \cdot 2 = 12 + 6 = 18 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$
  
and  
$$5 \cdot (8+3) = 5 \cdot 11 = 55 \iff 5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$$

and  

$$5 \cdot (8+3) = 5 \cdot 11 = 55$$
  
 $5 \cdot (8+3) = 5 \cdot 8 + 5 \cdot 3$   
 $5 \cdot 8 + 5 \cdot 3 = 40 + 15 = 55$ 

In general, 
$$\mathbf{x} \cdot (\mathbf{y} + \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} + \mathbf{x} \cdot \mathbf{z}$$

This is the distributive law for multiplication over addition.

$$\mathbf{x}(\mathbf{y} + \mathbf{z}) = \mathbf{x}\mathbf{y} + \mathbf{x}\mathbf{z}$$

# Algebra I Unit 1 Other Useful Properties The Distributive Laws

# The Distributive Laws

# **The Distributive Laws**

Consider these examples.

 $3 \cdot (4-2) =$ 

# **The Distributive Laws**

Consider these examples.

 $3\cdot(4-2)=3\cdot$ 

# **The Distributive Laws**

Consider these examples.

 $3\cdot(4-2)=3\cdot 2$ 

## **The Distributive Laws**

Consider these examples.

 $3 \cdot (4-2) = 3 \cdot 2 =$ 

## **The Distributive Laws**

Consider these examples.

 $3\cdot(4-2)=3\cdot 2=6$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 =$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12$ 

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 2$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 =$ 

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$ 

# The Distributive Laws

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$    
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$    
 $\checkmark$   $3 \cdot (4-2)$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
 $3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$    
 $\checkmark$   $3 \cdot (4-2) =$ 

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

 $5 \cdot (8-3) =$ 

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

 $5\cdot(8-3)=5\cdot$ 

# **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

 $5\cdot(8-3)=5\cdot 5$ 

# **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

 $5\cdot(8-3)=5\cdot5=$ 

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and

## **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
and
$$5 \cdot 8 - 5 \cdot 3 =$$

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
and

 $5\cdot 8-5\cdot 3=40$ 

## **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
and

$$5\cdot 8-5\cdot 3=40-$$

## **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
and

$$5 \cdot 8 - 5 \cdot 3 = 40 - 15$$

## **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$

$$3 \cdot (8 - 3) = 3 \cdot 3 - 23$$
  
and  
 $5 \cdot 8 - 5 \cdot 3 = 40 - 15 =$ 

## **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
 $5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$ 

# The Distributive Laws

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
 $5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
 $5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$ 

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
 $5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$    

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
and
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

$$5 \cdot (8-3) = 5 \cdot 8 - 5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

# **The Distributive Laws**

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

## **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,

# **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,  $\mathbf{x} \cdot$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,  $\mathbf{x} \cdot (\mathbf{y} - \mathbf{z})$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,  $\mathbf{x} \cdot (\mathbf{y} - \mathbf{z}) =$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,  $\mathbf{x} \cdot (\mathbf{y} - \mathbf{z}) = \mathbf{x} \cdot \mathbf{y}$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,  $\mathbf{x} \cdot (\mathbf{y} - \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} - \mathbf{z}$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general,  $\mathbf{x} \cdot (\mathbf{y} - \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} - \mathbf{x} \cdot \mathbf{z}$ 

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
  
and  
$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$
  
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general, 
$$\mathbf{x} \cdot (\mathbf{y} - \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} - \mathbf{x} \cdot \mathbf{z}$$

This is the distributive law for multiplication over subtraction.

### **The Distributive Laws**

Consider these examples.

$$3 \cdot (4-2) = 3 \cdot 2 = 6$$
and
$$3 \cdot (4-2) = 3 \cdot 4 - 3 \cdot 2$$

$$3 \cdot 4 - 3 \cdot 2 = 12 - 6 = 6$$

$$5 \cdot (8-3) = 5 \cdot 5 = 25$$
  
and  
$$5 \cdot 8 - 5 \cdot 3 = 40 - 15 = 25$$

In general, 
$$\mathbf{x} \cdot (\mathbf{y} - \mathbf{z}) = \mathbf{x} \cdot \mathbf{y} - \mathbf{x} \cdot \mathbf{z}$$

This is the distributive law for multiplication over subtraction.

$$\mathbf{x}(\mathbf{y}-\mathbf{z}) = \mathbf{x}\mathbf{y} - \mathbf{x}\mathbf{z}$$

Algebra I Unit 1 Other Useful Properties The Opposite of a Sum

# The Opposite of a Sum

# The Opposite of a Sum

Consider these examples.

-(3 + 4)

# The Opposite of a Sum

Consider these examples.

-(3 + 4) =

## The Opposite of a Sum

Consider these examples.

-(3+4) = -7
# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3 + -4

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3 + -4 =

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3 + -4 = -7

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4)

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) =

# The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3

# The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 +

# The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

# The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7 -(3+4) = -3 + -4

-(2+9)

## The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

-(2 + 9) =

## The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

-(2+9) = -11

## The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

-(2+9) = -11 and

## The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

-(2+9) = -11 and -2 + -9

## The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

-(2+9) = -11 and -2 + -9 =

## The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4

-(2+9) = -11 and -2 + -9 = -11

### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4-(2+9) = -11 and -2+-9 = -11

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9)

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) =

#### The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3 + -4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general,

## The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7 -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11 (2+9) = -2+-9In general, -(x+y)

## The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7 -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11 -(2+9) = -2+-9

In general, -(x + y) =

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, 
$$-(x + y) = -x + y$$

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, 
$$-(x + y) = -x + -y$$

# The Opposite of a Sum

Consider these examples.

$$-(3+4) = -7$$
 and  $-3+-4 = -7$    
 $-(3+4) = -3+-4$   
 $-(2+9) = -11$  and  $-2+-9 = -11$    
 $-(2+9) = -2+-9$ 

In general, -(x + y) = -x + -yThis is called the opposite of a sum property.

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

**Don't assume that -x and -y represent negative numbers.** 

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

Consider these examples.

## The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

**Don't assume that -x and -y represent negative numbers.** 

Consider these examples.

-(8 + -3)

## The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

Consider these examples.

-(8 + -3) =

## The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

Consider these examples.

-(8 + -3) = -5

#### The Opposite of a Sum

Consider these examples.

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

Consider these examples.

-(8+-3) = -5 and
#### The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

Consider these examples.

-(8+-3) = -5 and -8+3 =

#### The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

Consider these examples.

-(8+-3) = -5 and -8+3 = -5

#### The Opposite of a Sum

**Consider these examples.** 

-(3+4) = -7 and -3+-4 = -7  $\longrightarrow$  -(3+4) = -3+-4-(2+9) = -11 and -2+-9 = -11  $\longrightarrow$  -(2+9) = -2+-9

In general, -(x + y) = -x + -y

This is called the opposite of a sum property.

Don't assume that -x and -y represent negative numbers.

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Consider these examples.

-(8+-3) = -5 and -8+3 = -5  $\longrightarrow$  -(8+-3) = -8

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In general, -(x + y) = -x + -y

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Consider these examples.

-(8+-3) = -5 and -8+3 = -5  $\longrightarrow$  -(8+-3) = -8+

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$$-(8+-3) = -5$$
 and  $-8+3 = -5$   $-(8+-3) = -8+3$ 

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**Consider these examples.** 

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$$-(8+-3) = -5$$
 and  $-8+3 = -5$   $\longrightarrow$   $-(8+-3) = -8+3$   
-(-7+10)

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**Consider these examples.** 

$$-(8+-3) = -5$$
 and  $-8+3 = -5$   $-(8+-3) = -8+3$ 

-(-7+10) = -3 and 7 + -10

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**Consider these examples.** 

-(8+-3) = -5 and -8+3 = -5 -(8+-3) = -8+3-(-7+10) = -3 and 7+-10 = -3

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 $-(-7+10) = -3$  and  $7+-10 = -3$   $\longrightarrow$   $-(-7+10) = 7+-10$ 

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 and  $-8+3 = -5$   $-(8+-3) = -8+3$   
 $-(-7+10) = -3$  and  $7+-10 = -3$   $-(-7+10) = 7+-10$ 

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 3(x+4) =

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 3(x+4) = 3x

1. 
$$3(x+4) = 3x + 4$$

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 3(x+4) = 3x + 12

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1. 
$$3(x+4) = 3x + 12$$
 2.  $6(x-5) =$ 

1. 
$$3(x+4) = 3x + 12$$
 2.  $6(x-5) = 6x$ 

1. 
$$3(x+4) = 3x + 12$$
  
2.  $6(x-5) = 6x - 30$ 

1. 
$$3(x+4) = 3x + 12$$
  
2.  $6(x-5) = 6x - 30$ 

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 
$$3(x+4) = \frac{3x+12}{2}$$
 2.  $6(x-5) = \frac{6x-30}{6}$ 

3. 5(2x+7) =

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 
$$3(x+4) = \frac{3x+12}{2}$$
 2.  $6(x-5) = \frac{6x-30}{6}$ 

3. 5(2x+7) = 10x
Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 
$$3(x+4) = \frac{3x+12}{2}$$
 2.  $6(x-5) = \frac{6x-30}{6}$ 

3. 5(2x+7) = 10x +

- 1. 3(x+4) = 3x + 122. 6(x-5) = 6x - 30
- 3. 5(2x+7) = 10x + 35

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- 3. 5(2x + 7) = 10x + 35 4. 7(3x 4) =

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- 3. 5(2x + 7) = 10x + 35 4. 7(3x 4) = 21x

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Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 
$$3(x+4) = 3x + 12$$
  
2.  $6(x-5) = 6x - 30$ 

3. 5(2x + 7) = 10x + 354. 7(3x - 4) = 21x - 28

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

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$$3(x+4) = 3x + 12$$
  
2.  $6(x-5) = 6x - 30$ 

5. 
$$-2(x+5) = -2x + -10 = -2x - 2x - -2x - -2x$$

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$$3(x+4) = 3x+12$$
 2.  $6(x-5) = 6x-30$ 

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$$-2(x+5) = -2x + -10 = -2x - 10$$

6. 
$$-3(5x-4) =$$

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1. 
$$3(x+4) = 3x + 12$$
  
2.  $6(x-5) = 6x - 30$ 

5. 
$$-2(x+5) = -2x + -10 = -2x - 10$$

6. 
$$-3(5x-4) = -15x$$

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 
$$3(x+4) = 3x+12$$
 2.  $6(x-5) = 6x-30$ 

5. 
$$-2(x+5) = -2x + -10 = -2x - 10$$

6. 
$$-3(5x-4) = -15x -$$

Use the appropriate distributive law to write an equivalent expression without parentheses. (Don't leave any 'double signs' in your answers.)

1. 
$$3(x+4) = 3x+12$$
 2.  $6(x-5) = 6x-30$ 

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$$-2(x+5) = -2x + -10 = -2x - 10$$

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$$-3(5x-4) = -15x - -12$$

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$$3(x+4) = 3x+12$$
 2.  $6(x-5) = 6x-30$ 

5. 
$$-2(x+5) = -2x + -10 = -2x - 10$$

6. 
$$-3(5x-4) = -15x - -12$$

1. 
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- 5. -2(x+5) = -2x + -10 = -2x 10

6. 
$$-3(5x-4) = -15x - -12 =$$

1. 
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6. 
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Perform the indicated operations. Express your answers in simplest form.

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7. 5(3x + 2y) + 2(x + 5y) =

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=

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$

= 15x

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$

= 15x +

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x+2y)+2(x+5y)=$$

= 15x + 10y

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$

= 15x + 10y +

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$

= 15x + 10y + 2x
7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x +$ 

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y$ 

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$ 

=

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x$ 

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x +$ 

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

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$$3(2a-7b) + 3(7a+3b) =$$

=

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a - 7b) + 3(7a + 3b) =$$
  
= 6a

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
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= 6a - 21b + 21a

Perform the indicated operations. Express your answers in simplest form.

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=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

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$$3(2a-7b) + 3(7a+3b) =$$

= 6a - 21b + 21a +

Perform the indicated operations. Express your answers in simplest form.

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$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
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8. 
$$3(2a-7b) + 3(7a+3b) =$$

= 6a - 21b + 21a + 9b

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

$$= 6a - 21b + 21a + 9b =$$

=

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

$$= 6a - 21b + 21a + 9b =$$

$$= 27a$$

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

$$= 6a - 21b + 21a + 9b =$$

= 27a +

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

$$= 6a - 21b + 21a + 9b =$$

$$= 27a + -12b$$

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

$$= 6a - 21b + 21a + 9b =$$

$$= 27a + -12b$$

= 27a - 12b

Perform the indicated operations. Express your answers in simplest form.

7. 
$$5(3x + 2y) + 2(x + 5y) =$$
  
=  $15x + 10y + 2x + 10y =$   
=  $17x + 20y$ 

8. 
$$3(2a-7b) + 3(7a+3b) =$$

$$= 6a - 21b + 21a + 9b =$$

$$= 27a + -12b$$

=  $\frac{27a - 12b}{27a - 12b}$ 

Perform the indicated operations. Express your answers in simplest form.

9. (5x + 7y) - (2x + 3y) =

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y)$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) +$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x)$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x +$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y)$ 

Perform the indicated operations. Express your answers in simplest form.

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$ 

=

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x +$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b+9) - (5b-2) =$$

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9)$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) +$
9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) + (-5b)$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b+9) - (5b-2) =$$
  
=  $(2b+9) + (-5b+2)$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) + (-5b + 2) =$   
=

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) + (-5b + 2) =$   
=  $-3b$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) + (-5b + 2) =$   
=  $-3b +$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) + (-5b + 2) =$   
=  $-3b + 11$ 

9. 
$$(5x + 7y) - (2x + 3y) =$$
  
=  $(5x + 7y) + (-2x + -3y) =$   
=  $3x + 4y$ 

10. 
$$(2b + 9) - (5b - 2) =$$
  
=  $(2b + 9) + (-5b + 2) =$   
=  $-3b + 11$ 

Perform the indicated operations. Express your answers in simplest form.

11. 2(3x-8) - 3(4x-5) =

11. 
$$2(3x-8) - 3(4x-5) =$$
  
= (6x

11. 
$$2(3x-8) - 3(4x-5) =$$
  
= (6x - 16)

11. 
$$2(3x-8) - 3(4x-5) =$$
  
= (6x - 16) +

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x-16) + (-12x)$ 

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x-16) + (-12x+15)$ 

Perform the indicated operations. Express your answers in simplest form.

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$ 

=

Perform the indicated operations. Express your answers in simplest form.

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$ 

**= -6**x

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

11. 
$$2(3x - 8) - 3(4x - 5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$

11. 
$$2(3x - 8) - 3(4x - 5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
= (20x

11. 
$$2(3x - 8) - 3(4x - 5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
= (20x + 30)

11. 
$$2(3x - 8) - 3(4x - 5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
=  $(20x+30) +$ 

11. 
$$2(3x - 8) - 3(4x - 5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
=  $(20x+30) + (-15x)$ 

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
=  $(20x+30) + (-15x-3)$ 

Perform the indicated operations. Express your answers in simplest form.

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
=  $(20x+30) + (-15x-3) =$ 

=

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
=  $(20x+30) + (-15x-3) =$   
=  $5x$ 

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x + 6) - 3(5x + 1) =$$
  
=  $(20x + 30) + (-15x - 3) =$   
=  $5x + 27$ 

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

12. 
$$5(4x+6) - 3(5x+1) =$$
  
=  $(20x+30) + (-15x-3) =$   
=  $5x + 27$ 

Perform the indicated operations. Express your answers in simplest form.

11. 
$$2(3x-8) - 3(4x-5) =$$
  
=  $(6x - 16) + (-12x + 15) =$   
=  $-6x - 1$ 

# **Good luck on your homework !!**

$$= (20x + 30) + (-15x - 3) =$$

$$= 5x + 27$$