Algebra I Lesson #1 Unit 11 Class Worksheet #1 For Worksheets #1 & #2

To <u>factor</u> a whole number means to express the whole number as a product of 2 or more whole numbers.

$$6 = 35 = 91 =$$

$$6 = (2)$$
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The last example illustrates an important point. Your ability to factor depends on your understanding of multiplication facts. The first 2 problems are ÷easyøbecause they involve common multiplications facts. **Factoring algebraic expressions** is an important algebra skill. Each ÷factoring patternøyou will learn will depend on a related ÷multiplication patternø

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Notice that A is the greatest common factor of the given expression.

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The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

 $\mathbf{A}(\mathbf{B} + \mathbf{C}) = \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{C}$

These equations can be written as factoring problems.

 $3x + 15 = 3(x + 5) \qquad x^2 + 7x = x(x + 7)$ $4x^2 + 24x = 4x(x + 6) \qquad 20x^2 + 45x =$

AB + AC = A(B + C)

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

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 $4x^2 + 24x = 4x(x+6) \qquad \qquad 20x^2 + 45x =$

$\mathbf{AB} + \mathbf{AC} = \mathbf{A}(\mathbf{B} + \mathbf{C})$

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

A(B+C) = AB + AC

These equations can be written as factoring problems.

$$3x + 15 = 3(x + 5) \qquad x^{2} + 7x = x(x + 7)$$

$$4x^{2} + 24x = 4x(x + 6) \qquad 20x^{2} + 45x =$$

$$AB + AC = A(B + C)$$

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

 $\mathbf{A}(\mathbf{B} + \mathbf{C}) = \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{C}$

These equations can be written as factoring problems.

$$3x + 15 = 3(x + 5) \qquad x^2 + 7x = x(x + 7)$$

$$4x^2 + 24x = 4x(x + 6) \qquad 20x^2 + 45x = 5x($$

$$AB + AC = A(B + C)$$

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

A(B+C) = AB + AC

These equations can be written as factoring problems.

$$3x + 15 = 3(x + 5) \qquad x^2 + 7x = x(x + 7)$$

$$4x^2 + 24x = 4x(x + 6) \qquad 20x^2 + 45x = 5x(4x)$$

$$AB + AC = A(B + C)$$

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

A(B+C) = AB + AC

These equations can be written as factoring problems.

$$3x + 15 = 3(x + 5) \qquad x^2 + 7x = x(x + 7)$$

$$4x^2 + 24x = 4x(x + 6) \qquad 20x^2 + 45x = 5x(4x + 6)$$

 $\mathbf{AB} + \mathbf{AC} = \mathbf{A}(\mathbf{B} + \mathbf{C})$

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

 $\mathbf{A}(\mathbf{B} + \mathbf{C}) = \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{C}$

These equations can be written as factoring problems.

$$3x + 15 = 3(x + 5) \qquad x^2 + 7x = x(x + 7)$$

$$4x^2 + 24x = 4x(x + 6) \qquad 20x^2 + 45x = 5x(4x + 9)$$

 $\mathbf{AB} + \mathbf{AC} = \mathbf{A}(\mathbf{B} + \mathbf{C})$

Consider the following multiplication problems.

3(x + 5) = 3x + 15 $x(x + 7) = x^2 + 7x$

 $4x(x+6) = 4x^2 + 24x \qquad 5x(4x+9) = 20x^2 + 45x$

The multiplication pattern used here is the **distributive property for multiplication over addition**. This is stated below.

 $\mathbf{A}(\mathbf{B} + \mathbf{C}) = \mathbf{A}\mathbf{B} + \mathbf{A}\mathbf{C}$

These equations can be written as factoring problems.

$$3x + 15 = 3(x + 5)$$
 $x^2 + 7x = x(x + 7)$

 $4x^2 + 24x = 4x(x+6) \qquad 20x^2 + 45x = 5x(4x+9)$

$\mathbf{AB} + \mathbf{AC} = \mathbf{A}(\mathbf{B} + \mathbf{C})$

Perform the indicated operations.

1.
$$3(2x+5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

The Distributive Properties

Perform the indicated operations.

1.
$$3(2x+5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

The Distributive Properties A(B + C) = AB + AC

Perform the indicated operations.

1.
$$3(2x+5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x + 5) =$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

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

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

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

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

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

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) =$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x -$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) =$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

$$\begin{array}{c} \mathbf{3.} \\ \mathbf{7}(\mathbf{x}-\mathbf{1}) = \underline{7\mathbf{x}} \\ \mathbf{1} \end{array}$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

$$\begin{array}{c} \mathbf{3.} \\ \mathbf{7}(\mathbf{x}-\mathbf{1}) = \underline{7\mathbf{x}} \\ \mathbf{1} \\ \mathbf{1} \\ \mathbf{1} \end{array}$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

$$3. \quad 7(x-1) = \underline{7x-}$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

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

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

4.
$$-3(3x + 5) = -9x + -15$$

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = \underline{7x-7}$$

Don't leave 'double signs'.
4. $-3(3x+5) = \underline{-9x} + -15$

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = \underline{7x-7}$$

Don't leave 'double signs'.
4. $-3(3x+5) = \underline{-9x} - \underline{15}$

Perform the indicated operations.

1.
$$3(2x+5) = 6x+15$$

2.
$$5(3x-2) = 15x-10$$

3.
$$7(x-1) = 7x-7$$

4.
$$-3(3x+5) = -9x-15$$

Perform the indicated operations.

5.
$$x(x+3) =$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) =$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x + 3) =$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x + 3) =$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$\mathbf{x}(\mathbf{x}+\mathbf{3}) = \underline{\mathbf{x}^2}$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = \underline{x^2}$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 +$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

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

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

$$\begin{array}{c} \mathbf{x}(\mathbf{x}-\mathbf{5}) = \underline{\mathbf{x}^2} \\ \mathbf{1} \end{array}$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

$$x(x-5) = x^2$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

$$x(x-5) = \underline{x^2} - \underline{x^2}$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

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

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x + 5) = 6x^2$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 +$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) =$$
Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) =$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) = 35x^2$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) = 35x^2$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) = 35x^2 -$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) = 35x^2 - 15x$$

Perform the indicated operations.

5.
$$x(x+3) = x^2 + 3x$$

6.
$$x(x-5) = x^2 - 5x$$

7.
$$2x(3x+5) = 6x^2 + 10x$$

8.
$$5x(7x-3) = 35x^2 - 15x$$

Perform the indicated operations.

9.
$$6x(x+1) =$$

10.
$$-3x(2x-1) =$$

Perform the indicated operations.

9.
$$6x(x+1) =$$

10.
$$-3x(2x-1) =$$

Perform the indicated operations.

9.
$$6x(x+1) =$$

10.
$$-3x(2x-1) =$$

Perform the indicated operations.

9.
$$6x(x + 1) =$$

10.
$$-3x(2x-1) =$$

The Distributive Properties
$$A(B+C) = AB + AC$$
 $A(B-C) = AB - AC$

Perform the indicated operations.

9.
$$6x(x+1) = \underline{6x^2}$$

10.
$$-3x(2x-1) =$$

The Distributive Properties
$$A(B+C) = AB + AC$$
 $A(B-C) = AB - AC$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2$$

10.
$$-3x(2x-1) =$$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 +$$

10.
$$-3x(2x-1) =$$

The Distributive Properties
$$A(B+C) = AB + AC$$
 $A(B-C) = AB - AC$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) =$$

The Distributive Properties
$$A(B+C) = AB + AC$$
 $A(B-C) = AB - AC$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) =$$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) =$$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
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Perform the indicated operations.

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$$6x(x+1) = 6x^2 + 6x$$

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$$-3x(2x-1) =$$

The Distributive Properties
$$A(B+C) = AB + AC$$
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Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) = -6x^2$$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) = -6x^2$$

The Distributive Properties
$$A(B+C) = AB + AC$$
 $A(B-C) = AB - AC$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) = -6x^2 -$$

The Distributive Properties
$$A(B+C) = AB + AC$$
 $A(B-C) = AB - AC$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) = -6x^2 - -3x$$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10. $\begin{array}{c} \text{Don't leave 'double signs'.} \\ -3x(2x-1) = \underline{-6x^2 - -3x} \\ \end{array}$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10. $\begin{array}{r} \text{Don't leave 'double signs'.} \\ -3x(2x-1) = \underline{-6x^2 + 3x} \\ \end{array}$

Perform the indicated operations.

9.
$$6x(x+1) = 6x^2 + 6x$$

10.
$$-3x(2x-1) = -6x^2 + 3x$$

Factor each of the following completely.

21. 8x + 6 =

22. 5x - 20 =

23. 18x - 24 =

Factor each of the following completely.

21. 8x + 6 =

22. 5x - 20 =

23. 18x - 24 =

The Distributive Properties

Factor each of the following completely.

21. 8x + 6 =

22. 5x - 20 =

23. 18x - 24 =

The Distributive Properties AB + AC = A(B + C)

Factor each of the following completely.

21. 8x + 6 =

22. 5x - 20 =

23. 18x - 24 =

Factor each of the following completely.

21.
$$8x + 6 =$$

22.
$$5x - 20 =$$

23.
$$18x - 24 =$$

Factor each of the following completely.

21.
$$8x + 6 =$$

22.
$$5x - 20 =$$

23.
$$18x - 24 =$$

Factor each of the following completely.

21.
$$8x + 6 =$$

22.
$$5x - 20 =$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

Factor each of the following completely.

21.
$$8x + 6 = 2($$

22.
$$5x - 20 =$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

Factor each of the following completely.

21.
$$8x + 6 = 2($$

22.
$$5x - 20 =$$

23. 18x - 24 =

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

21.
$$8x + 6 = 2($$

22. 5x - 20 =

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.
Factor each of the following completely.

21.
$$8x + 6 = 2(4x)$$

22. 5x - 20 =

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = \frac{2(4x)}{1}$$

22. 5x - 20 =

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 1)$$

22. 5x - 20 =

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22. 5x - 20 =

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22. 5x - 20 =

23. 18x - 24 =

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 =$$

23. $18x - 24 =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 =$$

23. $18x - 24 =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 =$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5($$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5($$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5($$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5(x)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5(x)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5(x - 1)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x - 20 = 5(x - 4)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = 6($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties AB + AC = A(B + C)

 $\mathbf{AB} - \mathbf{AC} = \mathbf{A}(\mathbf{B} - \mathbf{C})$

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = 6($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = \frac{6}{1000}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = \frac{6(3x)}{100}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = \frac{6(3x)}{100}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = \frac{6(3x - 1)}{100}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = \frac{6(3x - 4)}{4}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

21.
$$8x + 6 = 2(4x + 3)$$

22.
$$5x-20 = 5(x-4)$$

23.
$$18x - 24 = 6(3x - 4)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24. -9x + 27 =_____

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 =$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 =$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 =$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

When the leading coefficient is <u>negative</u>,

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

When the leading coefficient is <u>negative</u>,

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

When the leading coefficient is <u>negative</u>, it is <u>customary</u> to factor out a negative number.

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

When the leading coefficient is <u>negative</u>, it is <u>customary</u> to factor out a negative number.

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties
Factor each of the following completely.

24.
$$-9x + 27 = -9($$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9($$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 1)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^{2} + 8x =$$
Make sure you understand this sign.

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x =$$

26. $x^2 - 3x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x =$$

26. $x^2 - 3x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x =$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x($$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x($$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

$$x^2 + 8x = x($$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

$$x^2 + 8x = x(x)$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

$$x^2 + 8x = x(x)$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

$$x^2 + 8x = \underline{x(x + 1)}$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

$$x^2 + 8x = \underline{x(x+8)}$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x =$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x = x($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x = x($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

$$x^2 - 3x = x($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

$$x^2 - 3x = x(x)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

$$x^2 - 3x = x(x)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

$$x^2 - 3x = x(x - 1)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x = x(x - 3)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

24.
$$-9x + 27 = -9(x - 3)$$

25.
$$x^2 + 8x = x(x + 8)$$

26.
$$x^2 - 3x = x(x - 3)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

27. $3x^2 - 6x =$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

27.
$$3x^2 - 6x =$$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

27.
$$3x^2 - 6x =$$

 $28. 15x^2 + 10x =$

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Factor each of the following completely.

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$$3x^2 - 6x =$$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties
Factor each of the following completely.

27. $3x^2 - 6x = 3x($

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

27. $3x^2 - 6x = 3x($

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

AB + AC = A(B + C) AB -

 $\mathbf{AB} - \mathbf{AC} = \mathbf{A}(\mathbf{B} - \mathbf{C})$

Factor each of the following completely.

$$3x^2 - 6x = 3x($$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

$$3x^2 - 6x = 3x(x)$$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

$$3x^2 - 6x = 3x(x)$$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

$$3x^2 - 6x = 3x(x - 6x)$$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

27.
$$3x^2 - 6x = 3x(x-2)$$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

27. $3x^2 - 6x = 3x(x-2)$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

27. $3x^2 - 6x = 3x(x-2)$

 $28. \quad 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

27. $3x^2 - 6x = 3x(x-2)$

 $15x^2 + 10x =$ 28.

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

27. $3x^2 - 6x = 3x(x-2)$

 $28. 15x^2 + 10x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

27. $3x^2 - 6x = 3x(x-2)$

$$28. \quad 15x^2 + 10x = 5x($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

27. $3x^2 - 6x = 3x(x - 2)$

$$28. \quad 15x^2 + 10x = 5x($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

27.
$$3x^2 - 6x = 3x(x-2)$$

$$15x^2 + 10x = 5x($$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

27.
$$3x^2 - 6x = 3x(x-2)$$

$$15x^2 + 10x = 5x(3x)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

27.
$$3x^2 - 6x = 3x(x-2)$$

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A is the greatest common factor of the terms of the expression. 'Factor out' A.

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Factor each of the following completely.

27.
$$3x^2 - 6x = 3x(x-2)$$

$$15x^2 + 10x = 5x(3x + 10x)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

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Factor each of the following completely.

27.
$$3x^2 - 6x = 3x(x-2)$$

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$$15x^2 + 10x = 5x(3x + 2)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

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Factor each of the following completely.

27. $3x^2 - 6x = 3x(x-2)$

28. $15x^2 + 10x = 5x(3x + 2)$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

Factor each of the following completely.

 $29. -2x^2 + 4x =$

 $30. \quad 20x^2 - 16x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

29. $-2x^2 + 4x =$

 $30. \quad 20x^2 - 16x = _$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

Factor each of the following completely.

29. $-2x^2 + 4x =$

 $20x^2 - 16x =$ 30.

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

29. $-2x^2 + 4x =$

 $20x^2 - 16x =$ 30.

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

29. $-2x^2 + 4x = -2x($

 $20x^2 - 16x =$ **30.**

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29. $-2x^2 + 4x = -2x($

When the leading coefficient is <u>negative</u>,

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x($$

When the leading coefficient is <u>negative</u>,

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x($$

When the leading coefficient is negative, it is <u>customary</u> to factor out a negative number.

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

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$$-2x^2 + 4x = -2x($$

When the leading coefficient is negative, it is <u>customary</u> to factor out a negative number.

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The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

29. $-2x^2 + 4x = -2x($

 $20x^2 - 16x =$ **30.**

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30. $20x^2 - 16x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by **dividing each term of the expression by A**.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x)$$

30. $20x^2 - 16x =$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

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The Distributive Properties

Factor each of the following completely.

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$$-2x^2 + 4x = -2x(x)$$

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A is the greatest common factor of the terms of the expression. 'Factor out' A.

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The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x - 4x)$$

30. $20x^2 - 16x = 4x^2 + 4x = -2x(x - 4x)$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

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$$-2x^2 + 4x = -2x(x-2)$$

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The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x - 2)$$

30. $20x^2 - 16x =$ Make sure you understand this sign.

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The Distributive PropertiesAB + AC = A(B + C)AB - AC = A(B - C)

Factor each of the following completely.

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The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x-2)$$

$$30. \quad 20x^2 - 16x = \frac{4x}{1000}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x-2)$$

$$30. \quad 20x^2 - 16x = 4x(5x)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x-2)$$

$$30. \quad 20x^2 - 16x = 4x(5x)$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x-2)$$

$$30. \quad 20x^2 - 16x = \frac{4x(5x - 16x)}{4x(5x - 16x)}$$

A is the greatest common factor of the terms of the expression. 'Factor out' A.

The second factor is determined by dividing each term of the expression by A.

The Distributive Properties

Factor each of the following completely.

29.
$$-2x^2 + 4x = -2x(x-2)$$

$$30. \quad 20x^2 - 16x = 4x(5x - 4)$$

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Factor each of the following completely.

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$$30. \quad 20x^2 - 16x = 4x(5x - 4)$$

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The second factor is determined by dividing each term of the expression by A.

The Distributive PropertiesAB + AC = A(B + C)AB - AC = A(B - C)

Consider the following multiplication problems.

(x+3)(x+5) =

$$(x+7)(x+6) =$$

(x + 9)(x + 2) =

Consider the following multiplication problems.

(x+3)(x+5) =

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

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

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

$$(\mathbf{x} + \mathbf{a})(\mathbf{x} + \mathbf{b}) =$$

$$(x+3)(x+5) = x^2$$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

$$(\mathbf{x} + \mathbf{a})(\mathbf{x} + \mathbf{b}) =$$

$$(x+3)(x+5) = x^2$$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

$$(\mathbf{x} + \mathbf{a})(\mathbf{x} + \mathbf{b}) =$$

$$(x+3)(x+5) = x^2 +$$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

$$(\mathbf{x} + \mathbf{a})(\mathbf{x} + \mathbf{b}) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x$

$$(\mathbf{x}+\mathbf{7})(\mathbf{x}+\mathbf{6}) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x$ (x + 7)(x + 6) = (x + 9)(x + 2) =(x + a)(x + b) =

Consider the following multiplication problems.

X

$$(x + 3)(x + 5) = x^{2} + 5x + 3x$$
$$(x + 7)(x + 6) =$$
$$(x + 9)(x + 2) =$$
$$(x + a)(x + b) =$$

$$(x + 3)(x + 5) = x^{2} + 5x + 3x$$
$$(x + 7)(x + 6) =$$
$$(x + 9)(x + 2) =$$
$$(x + a)(x + b) =$$

$$(x + 3)(x + 5) = x^{2} + 5x + 3x + (x + 7)(x + 6) =$$
$$(x + 9)(x + 2) =$$
$$(x + a)(x + b) =$$

$$(x + 3)(x + 5) = x^{2} + 5x + 3x + 15$$
$$(x + 7)(x + 6) =$$
$$(x + 9)(x + 2) =$$
$$(x + a)(x + b) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 =$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x + 3x + 15 =$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x + 3x + 15 = x^{2}$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

(x + a)(x + b) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x + 3x + 15 = x^{2} + 8x$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

(x + a)(x + b) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x + 3x + 15 = x^{2} + 8x +$

$$(\mathbf{x}+\mathbf{7})(\mathbf{x}+\mathbf{6}) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x + 3x + 15 = x^{2} + 8x + 15$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^{2} + 5x + 3x + 15 = x^{2} + 8x + 15$

$$(x+7)(x+6) =$$

$$(x + 9)(x + 2) =$$
Factoring Trinomials - Type 1 Consider the following multiplication problems. $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$ (x + 7)(x + 6) =(x+9)(x+2) =(x + a)(x + b) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

(x+7)(x+6) =

(x + 9)(x + 2) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

$$(x + 7)(x + 6) =$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2 +$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2 + 6x$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2 + 6x$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2 + 6x +$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2 + 6x + 7x$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^2 + 6x + 7x$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

$$(x + 7)(x + 6) = x^2 + 6x + 7x +$$

$$(x + 9)(x + 2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

$$(x + 7)(x + 6) = x^2 + 6x + 7x + 42$$

$$(x+9)(x+2) =$$

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

 $(x + 7)(x + 6) = x^2 + 6x + 7x + 42 =$

(x + 9)(x + 2) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

 $(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 =$

(x + 9)(x + 2) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

 $(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 = x^{2}$

(x + 9)(x + 2) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

 $(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 = x^{2} + 6x$

(x + 9)(x + 2) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

 $(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 = x^{2} + 13x$

(x + 9)(x + 2) =

Consider the following multiplication problems.

 $(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$

 $(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 = x^{2} + 13x + 10x + 10x$

(x + 9)(x + 2) =

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 = x^{2} + 13x + 42$$

(x+9)(x+2) =

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x^2 + 5x + 3x + 15 = x^2 + 8x + 15$$

$$(x + 7)(x + 6) = x^{2} + 6x + 7x + 42 = x^{2} + 13x + 42$$

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$$(x + a)(x + b) = x^{2} + (b + a)x + ab$$

Notice that these problems are similar. Each involves multiplying two binomials. The first term in each binomial is \underline{x} . The second term in each binomial is a constant. The answers are also similar. Each answer is a trinomial. The first term is x^2 . The coefficient of the 'x-term' (the middle term) is the sum of the two constants (b + a).

Consider the following multiplication problems.

$$(x + 3)(x + 5) = x2 + 8x + 15$$

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Perform the indicated operations.

11. (x+3)(x+7) =_____

12.
$$(x+8)(x-5) =$$

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Use this pattern.

 $(x + a)(x + b) = x^2 + (b + a)x + ab$

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11.
$$(x + 3)(x + 7) =$$

a = 3

12.
$$(x+8)(x-5) =$$

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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = _____a = 3 b = _____b$$

12.
$$(x+8)(x-5) =$$

13.
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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) =$$

a - 3 b - 7

12.
$$(x+8)(x-5) =$$

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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = x^2$$

a = 3 b = 7 b + a = 10

12.
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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = x^2 + a = 3$$
 $b = 7$ $b + a = 10$

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 $b = 7$ $b + a = 10$ $ab = 21$

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 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
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 $a = 8 \ b = -5 \ b + a = 3 \ ab =$

13.
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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = \underline{x^2 + 10x + 21}$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = \underline{x^2 + 3x}$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$

13.
$$(x-4)(x+9) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = \underline{x^2 + 10x + 21}$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = \underline{x^2 + 3x} - a = 8 \ b = -5 \ b + a = 3 \ ab = -40$

13.
$$(x-4)(x+9) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = \underline{x^2 + 10x + 21}$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = \underline{x^2 + 3x - 40}$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$

13.
$$(x-4)(x+9) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = \underline{x^2 + 10x + 21}$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
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13.
$$(x-4)(x+9) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = x^2 + 10x + 21$$

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12. $(x + 8)(x - 5) = x^2 + 3x - 40$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$

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Use this pattern.

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 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) =$
 $a = 3 \ ab = -40$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = x^2 + 10x + 21$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = x^2 + 3x - 40$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) =$
 $a = -4$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = \underline{x^2 + 10x + 21}$$

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12. $(x + 8)(x - 5) = \underline{x^2 + 3x - 40}$
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13. $(x - 4)(x + 9) = \underline{a = -4}$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = x^2 + 10x + 21$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = x^2 + 3x - 40$
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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

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 $a = -4 \ b = 9$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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Use this pattern.

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 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = x^2$
 $a = -4 \ b = 9 \ b + a = 5$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = x^2 + 10x + 21$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = x^2 + 3x - 40$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
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Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

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 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = x^2 + 5x$
 $a = -4 \ b = 9 \ b + a = 5$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = x^2 + 10x + 21$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
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 $a = -4 \ b = 9 \ b + a = 5$

Use this pattern.

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Use this pattern.

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 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = \underline{x^2 + 5x}$
 $a = -4 \ b = 9 \ b + a = 5 \ ab = -36$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

11.
$$(x + 3)(x + 7) = \underline{x^2 + 10x + 21}$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = \underline{x^2 + 3x - 40}$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = \underline{x^2 + 5x - 40}$
 $a = -4 \ b = 9 \ b + a = 5 \ ab = -36$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

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$$(x + 3)(x + 7) = x^2 + 10x + 21$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
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 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = x^2 + 5x - 36$
 $a = -4 \ b = 9 \ b + a = 5 \ ab = -36$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = x^2 + 10x + 21$$

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12. $(x + 8)(x - 5) = x^2 + 3x - 40$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = x^2 + 5x - 36$
 $a = -4 \ b = 9 \ b + a = 5 \ ab = -36$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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$$(x + 3)(x + 7) = x^2 + 10x + 21$$

 $a = 3 \ b = 7 \ b + a = 10 \ ab = 21$
12. $(x + 8)(x - 5) = x^2 + 3x - 40$
 $a = 8 \ b = -5 \ b + a = 3 \ ab = -40$
13. $(x - 4)(x + 9) = x^2 + 5x - 36$

$$a = -4$$
 $b = 9$ $b + a = 5$ $ab = -36$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14. (x-6)(x-3) =_____

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

Use this pattern.

 $(x + a)(x + b) = x^2 + (b + a)x + ab$

Perform the indicated operations.

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$$(x-6)(x-3) =$$

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a =

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Use this pattern.

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14.
$$(x-6)(x-3) =$$

a = -6 b =

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = _____$$

a = -6 b = -3

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = _____$$

a = -6 b = -3

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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = \frac{x^2}{a = -6 \ b = -3 \ b + a = -6 \ b = -3 \ b = -$$

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2$$

a = -6 b = -3 b + a = -9

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - a = -6$$
 $b = -3$ $b + a = -9$

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x$$

 $a = -6 \ b = -3 \ b + a = -9$

15.
$$(x+8)(x+2) =$$

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Use this pattern.

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 $a = -6 \ b = -3 \ b + a = -9 \ ab =$

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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x$$

a = -6 b = -3 b + a = -9 ab = 18

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + a = -6$$
 b = -3 b + a = -9 ab = 18

15.
$$(x+8)(x+2) =$$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

a = -6 b = -3 b + a = -9 ab = 18

15.
$$(x+8)(x+2) =$$

16.
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Perform the indicated operations.

14.
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a = -6 b = -3 b + a = -9 ab = 18

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16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

a = -6 b = -3 b + a = -9 ab = 18

15. (x + 8)(x + 2) =_____

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$

16.
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Perform the indicated operations.

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$$(x-6)(x-3) = x^2 - 9x + 18$$

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 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a =$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a = 8$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
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 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
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 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a = 8 \ b =$

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$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a = 8 \ b = 2$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a = 8 \ b = 2$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a = 8 \ b = 2$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$
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$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) =$
 $a = 8 \ b = 2$

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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
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 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2$
 $a = 8 \ b = 2$

16.
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Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
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 $a = 8 \ b = 2$

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 $a = 8 \ b = 2$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2$
 $a = 8 \ b = 2 \ b + a =$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2$
 $a = 8 \ b = 2 \ b + a = 10$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + a = 8 \ b = 2 \ b + a = 10$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x$
 $a = 8 \ b = 2 \ b + a = 10$

16.
$$(x-7)(x+2) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x$
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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

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 $a = 8 \ b = 2 \ b + a = 10$

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$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x$
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16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
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 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

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16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) = 10^{-10}$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) =$$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) = 10^{-10}$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) =$
 $a =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) =$
 $a = -7$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

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 $a = -7$

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

Perform the indicated operations.

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$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
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 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) =$
 $a = -7 \ b =$

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

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$$(x-6)(x-3) = x^2 - 9x + 18$$

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$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
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 $a = -7 \ b = 2$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
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 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
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 $a = -7 \ b = 2$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

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$$(x-6)(x-3) = x^2 - 9x + 18$$

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16. $(x-7)(x+2) = x^2$
 $a = -7 \ b = 2$

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2$
 $a = -7 \ b = 2$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2$
 $a = -7 \ b = 2 \ b + a =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2$
 $a = -7 \ b = 2 \ b + a = -5$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - a = -7 \ b = 2 \ b + a = -5$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x$
 $a = -7 \ b = 2 \ b + a = -5$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x$
 $a = -7 \ b = 2 \ b + a = -5$

Use this pattern.

 $(x + a)(x + b) = x^2 + (b + a)x + ab$
14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
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Use this pattern.

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 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x$
 $a = -7 \ b = 2 \ b + a = -5 \ ab = 10$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x$
 $a = -7 \ b = 2 \ b + a = -5 \ ab = -14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x - a$
 $a = -7 \ b = 2 \ b + a = -5 \ ab = -14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x - 14$
 $a = -7 \ b = 2 \ b + a = -5 \ ab = -14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$
16. $(x-7)(x+2) = x^2 - 5x - 14$
 $a = -7 \ b = 2 \ b + a = -5 \ ab = -14$

Use this pattern.

Perform the indicated operations.

14.
$$(x-6)(x-3) = x^2 - 9x + 18$$

 $a = -6 \ b = -3 \ b + a = -9 \ ab = 18$
15. $(x+8)(x+2) = x^2 + 10x + 16$
 $a = 8 \ b = 2 \ b + a = 10 \ ab = 16$

16.
$$(x-7)(x+2) = \underline{x^2 - 5x - 14}$$

a = -7 b = 2 b + a = -5 ab = -14

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17. (x+3)(x-8) =

18.
$$(x-2)(x-6) =$$

Use this pattern.

Perform the indicated operations.

17. (x+3)(x-8) =

18.
$$(x-2)(x-6) =$$

Use this pattern.

Perform the indicated operations.

17. (x+3)(x-8) =

18.
$$(x-2)(x-6) =$$

Use this pattern.

Perform the indicated operations.

17. (x+3)(x-8) =

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) =$$

a =

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) =$$

a = 3

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) =$$

a = 3

18.
$$(x-2)(x-6) =$$

Use this pattern.

17.
$$(x + 3)(x - 8) =$$

 $a = 3$

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) =$$

 $a = 3 \quad b =$ ______

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = _a = 3$$
 $b = -8$

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = _a = 3$$
 $b = -8$

18.
$$(x-2)(x-6) =$$

Use this pattern.

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = _a = 3$$
 $b = -8$

18.
$$(x-2)(x-6) =$$

Use this pattern.

17.
$$(x + 3)(x - 8) = _____$$

a = 3 b = -8

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2$$

a = 3 b = -8

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2$$

a = 3 b = -8

18.
$$(x-2)(x-6) =$$

Use this pattern.

17.
$$(x + 3)(x - 8) = x^2$$

a = 3 b = -8

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2$$

a = 3 b = -8 b + a =

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2$$

a = 3 b = -8 b + a = -5

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - a = 3$$
 $b = -8$ $b + a = -5$

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x$$

a = 3 b = -8 b + a = -5

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x$$

a = 3 b = -8 b + a = -5

18.
$$(x-2)(x-6) =$$

Use this pattern.

17.
$$(x + 3)(x - 8) = x^2 - 5x$$

a = 3 b = -8 b + a = -5

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x$$

a = 3 b = -8 b + a = -5 ab =

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x$$

a = 3 b = -8 b + a = -5 ab = -24

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - a = 3$$
 $b = -8$ $b + a = -5$ $ab = -24$

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18.
$$(x-2)(x-6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18. (x-2)(x-6) =

Use this pattern.

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18. (x-2)(x-6) =_____

Use this pattern.

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18. (x-2)(x-6) =

Use this pattern.
Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18. (x-2)(x-6) = _____

Use this pattern.

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18. (x-2)(x-6) =

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2$

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2$

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3 \quad b = -8 \quad b + a = -5 \quad ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2 \quad b =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2$ $b = -6$

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2$ $b = -6$

Use this pattern.

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = \underline{x^2 - 5x - 24}$$

 $a = 3 \quad b = -8 \quad b + a = -5 \quad ab = -24$
18. $(x - 2)(x - 6) = \underline{a = -2} \quad b = -6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) =$
 $a = -2$ $b = -6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2$
 $a = -2$ $b = -6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2$
 $a = -2$ $b = -6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2$
 $a = -2$ $b = -6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18.
$$(x-2)(x-6) = x^2$$

 $a = -2 \ b = -6 \ b + a =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18.
$$(x-2)(x-6) = x^2$$

 $a = -2 \ b = -6 \ b + a = -8$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

a = 3 b = -8 b + a = -5 ab = -24

18.
$$(x-2)(x-6) = x^2 - a = -2$$
 $b = -6$ $b + a = -8$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2 - 8x$
 $a = -2$ $b = -6$ $b + a = -8$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2 - 8x$

a = -2 b = -6 b + a = -8

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2 - 8x$

a = -2 b = -6 b + a = -8

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = \underline{x^2 - 5x - 24}$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = \underline{x^2 - 8x}$
 $a = -2$ $b = -6$ $b + a = -8$ $ab = -2$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2 - 8x$
 $a = -2$ $b = -6$ $b + a = -8$ $ab = 12$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = \underline{x^2 - 5x - 24}$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = \underline{x^2 - 8x + 4}$
 $a = -2$ $b = -6$ $b + a = -8$ $ab = 12$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

17.
$$(x + 3)(x - 8) = \underline{x^2 - 5x - 24}$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = \underline{x^2 - 8x + 12}$
 $a = -2$ $b = -6$ $b + a = -8$ $ab = 12$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = \underline{x^2 - 5x - 24}$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = \underline{x^2 - 8x + 12}$
 $a = -2$ $b = -6$ $b + a = -8$ $ab = 12$

Use this pattern.

Perform the indicated operations.

17.
$$(x + 3)(x - 8) = x^2 - 5x - 24$$

 $a = 3$ $b = -8$ $b + a = -5$ $ab = -24$
18. $(x - 2)(x - 6) = x^2 - 8x + 12$
 $a = -2$ $b = -6$ $b + a = -8$ $ab = 12$

Use this pattern.

Perform the indicated operations.

19. (x-9)(x+7) =

20.
$$(x+8)(x+6) =$$

Use this pattern.

Perform the indicated operations.

19. (x-9)(x+7) =

20. (x+8)(x+6) =

Use this pattern.

Perform the indicated operations.

19. (x-9)(x+7) = _____

20. (x+8)(x+6) =

Use this pattern.

Perform the indicated operations.

19. (x-9)(x+7) =

20. (x+8)(x+6) =

Use this pattern.

Perform the indicated operations.

19.
$$(x-9)(x+7) =$$

a =

$$20. (x+8)(x+6) = _$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) =$$
______ $a = -9$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) =$$

a = -9

20.
$$(x+8)(x+6) =$$

Use this pattern.

19.
$$(x-9)(x+7) =$$

a = -9

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) =$$

 $a = -9 \quad b =$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = _a = -9 \quad b = 7$$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$
Perform the indicated operations.

19.
$$(x-9)(x+7) = _a = -9 \quad b = 7$$

20.
$$(x+8)(x+6) =$$

Use this pattern.

Perform the indicated operations.

19.
$$(x-9)(x+7) = _a = -9 \quad b = 7$$

20.
$$(x+8)(x+6) =$$

Use this pattern.

19.
$$(x-9)(x+7) = _a = -9 \quad b = 7$$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2$$

a = -9 b = 7

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2$$

 $a = -9 \quad b = 7$

20.
$$(x+8)(x+6) =$$

Use this pattern.

19.
$$(x - 9)(x + 7) = x^2$$

 $a = -9 \quad b = 7$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = \frac{x^2}{a = -9} \quad b = 7 \quad b + a =$$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2$$

a = -9 b = 7 b + a = -2

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = \underline{x^2} - a = -9$$
 $b = 7$ $b + a = -2$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = \underline{x^2 - 2x}$$

 $a = -9$ $b = 7$ $b + a = -2$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) = \underline{x^2 - 2x}$$

 $a = -9$ $b = 7$ $b + a = -2$

20.
$$(x+8)(x+6) =$$

Use this pattern.

19.
$$(x-9)(x+7) = \underline{x^2 - 2x}$$

 $a = -9$ $b = 7$ $b + a = -2$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = \underline{x^2 - 2x}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab =$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x - 9)(x + 7) = \underline{x^2 - 2x}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = \underline{x^2 - 2x} - a = -9$$
 $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x+8)(x+6) =$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) = \underline{x^2 - 2x - 63}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x+8)(x+6) =$$

Use this pattern.

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

a = -9 b = 7 b + a = -2 ab = -63

20. (x+8)(x+6) =_____

Use this pattern.

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

a = -9 b = 7 b + a = -2 ab = -63

20. (x+8)(x+6) =

Use this pattern.

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

a = -9 b = 7 b + a = -2 ab = -63

20. (x+8)(x+6) =

Use this pattern.

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20. (x+8)(x+6) =

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

19.
$$(x - 9)(x + 7) = \underline{x^2 - 2x - 63}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 8)(x + 6) = \underline{a = 2}$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x - 9)(x + 7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 8)(x + 6) =$
 $a = 8$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x - 9)(x + 7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 8)(x + 6) =$
 $a = 8$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x - 9)(x + 7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 8)(x + 6) =$
 $a = 8$

Use this pattern. $(x + a)(x + b) = x^2 + (b + a)x + ab$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x+8)(x+6) =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x+8)(x+6) =$

$$a = 8$$
 $b = 6$

Δ

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x - 9)(x + 7) = \underline{x^2 - 2x - 63}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 9)(x + 6) = -63$

20.
$$(x + 8)(x + 6) =$$

 $a = 8 \quad b = 6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x - 9)(x + 7) = \underline{x^2 - 2x - 63}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 9)(x + 6) = -63$

20.
$$(x + 8)(x + 6) =$$

 $a = 8$ $b = 6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = \underline{x^2 - 2x - 63}$$

a = -9 b = 7 b + a = -2 ab = -63
20. $(x+8)(x+6) =$

$$a = 8 \quad b = 6$$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x+8)(x+6) = x^2$

20.
$$(x + 8)(x + 6) = x^2$$

a = 8 b = 6

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x+8)(x+6) = x^2$

$$a = 8$$
 $b = 6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x+8)(x+6) = x^2$

$$a = 8$$
 $b = 6$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

a = -9 b = 7 b + a = -2 ab = -63

20.
$$(x + 8)(x + 6) = x^2$$

a = 8 b = 6 b + a =

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2$$

a = 8 b = 6 b + a = 14

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2 + a = 8$$
 $b = 6$ $b + a = 14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$
19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2 + 14x$$

 $a = 8$ $b = 6$ $b + a = 14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2 + 14x$$

 $a = 8$ $b = 6$ $b + a = 14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = \underline{x^2 + 14x}$$

 $a = 8$ $b = 6$ $b + a = 14$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2 + 14x$$

 $a = 8$ $b = 6$ $b + a = 14$ $ab =$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2 + 14x$$

 $a = 8$ $b = 6$ $b + a = 14$ $ab = 48$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x-9)(x+7) = x^2 - 2x - 63$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$

20.
$$(x + 8)(x + 6) = x^2 + 14x + a = 8$$
 $b = 6$ $b + a = 14$ $ab = 48$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

19.
$$(x - 9)(x + 7) = \underline{x^2 - 2x - 63}$$

 $a = -9$ $b = 7$ $b + a = -2$ $ab = -63$
20. $(x + 8)(x + 6) = \underline{x^2 + 14x + 48}$
 $a = 8$ $b = 6$ $b + a = 14$ $ab = 48$

Use this pattern.

$$(x + a)(x + b) = x^2 + (b + a)x + ab$$

Perform the indicated operations.

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Now consider the same equations written as factoring problems.

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Factor each of the following completely.

31. $x^2 + 5x + 6 =$

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Factor each of the following completely.

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Use this pattern.

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 $b + a = 17$ $ab = 72$ $a = 8$ $b = 9$

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 $b + a = 17$ $ab = 72$ $a = 8$ $b = 9$

$$36. \quad x^2 - 13x + 40 = _$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

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$$x^{2} + x - 12 = (x + 4)(x - 3)$$

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36. $x^{2} - 13x + 40 = (x - 1)^{2}$
 $b + a = -13$ $ab = 40$ $a = -5$ $b = -8$

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$$b + a = -13$$
 $ab = 40$ $a = -5$ $b = -8$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

37. $x^2 + 19x - 20 =$

$$38. \quad x^2 - 8x - 65 = _$$

 $39. \quad x^2 + 18x + 77 = _$

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b + a = 19

$$38. \quad x^2 - 8x - 65 = _$$

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b + a = 19

$$38. \quad x^2 - 8x - 65 = _$$

 $39. \quad x^2 + 18x + 77 = _$

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b + a = 19

$$38. \quad x^2 - 8x - 65 = _$$

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b + a = 19 ab =

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b + a = 19 ab = -20

 $38. \quad x^2 - 8x - 65 = _$

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b + a = 19 ab = -20

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Factor each of the following completely.

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b + a = 19 ab = -20 a = b =

 $38. \quad x^2 - 8x - 65 =$

 $39. \quad x^2 + 18x + 77 = _$

Use this pattern.

Factor each of the following completely.

 $37. \quad x^2 + 19x - 20 =$

b + a = 19 ab = -20 a = -1 b =

 $38. \quad x^2 - 8x - 65 =$

 $39. \quad x^2 + 18x + 77 = _$

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Factor each of the following completely.

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b + a = 19 ab = -20 a = -1 b = 20

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b + a = 19 ab = -20 a = -1 b = 20

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 $39. \quad x^2 + 18x + 77 = _$

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Factor each of the following completely.

 $37. \quad x^2 + 19x - 20 =$

b + a = 19 ab = -20 a = -1 b = 20

 $38. \quad x^2 - 8x - 65 = _$

 $39. \quad x^2 + 18x + 77 = _$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $37. \ x^2 + 19x - 20 = (x)$

b + a = 19 ab = -20 a = -1 b = 20

 $38. \quad x^2 - 8x - 65 =$

 $39. \quad x^2 + 18x + 77 = _$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $37. \quad x^2 + 19x - 20 = (x - 10)^{-10}$

b + a = 19 ab = -20 a = -1 b = 20

 $38. \quad x^2 - 8x - 65 = _$

 $39. \quad x^2 + 18x + 77 = _$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

37.
$$x^2 + 19x - 20 = (x - 1)$$

b + a = 19 ab = -20 a = -1 b = 20

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$$x^2 + 19x - 20 = (x - 1)$$

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$$x^2 + 19x - 20 = (x - 1)(x)$$

b + a = 19 ab = -20 a = -1 b = 20

 $38. \quad x^2 - 8x - 65 = _$

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$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

37.
$$x^2 + 19x - 20 = (x - 1)(x + b + a = 19)$$
 $ab = -20$ $a = -1$ $b = 20$

 $38. \quad x^2 - 8x - 65 = _$

$$39. \quad x^2 + 18x + 77 = _$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

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 $38. \quad x^2 - 8x - 65 = _$

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$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

37.
$$x^2 + 19x - 20 = (x - 1)(x + 20)$$

 $b + a = 19$ $ab = -20$ $a = -1$ $b = 20$
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Use this pattern.

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37. $\mathbf{x}^2 + \mathbf{19x} - \mathbf{20} = (\mathbf{x} - \mathbf{1})(\mathbf{x} + \mathbf{20})$ $\mathbf{b} + \mathbf{a} = \mathbf{19}$ $\mathbf{ab} = -20$ $\mathbf{a} = -1$ $\mathbf{b} = 20$ **38.** $\mathbf{x}^2 - \mathbf{8x} - \mathbf{65} =$ $\mathbf{b} + \mathbf{a} = -8$ $\mathbf{ab} = -\mathbf{65}$

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 $b + a = -8$ $ab = -65$ $a = -13$ $b = 5$

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 $b + a = -8$ $ab = -65$ $a = -13$ $b = 5$

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Use this pattern. $x^{2} + (b + a)x + ab = (x + a)(x + b)$

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39. $x^{2} + 18x + 77 =$
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Factor each of the following completely.

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39. $x^{2} + 18x + 77 =$
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 $b + a = 18$ $ab = 77$ $a = 7$ $b =$

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Factor each of the following completely.

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39. $x^{2} + 18x + 77 =$
 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

37.
$$\mathbf{x}^2 + \mathbf{19x} - \mathbf{20} = (\mathbf{x} - \mathbf{1})(\mathbf{x} + \mathbf{20})$$

 $\mathbf{b} + \mathbf{a} = 19$ $\mathbf{ab} = -20$ $\mathbf{a} = -1$ $\mathbf{b} = 20$
38. $\mathbf{x}^2 - \mathbf{8x} - \mathbf{65} = (\mathbf{x} - \mathbf{13})(\mathbf{x} + \mathbf{5})$
 $\mathbf{b} + \mathbf{a} = -8$ $\mathbf{ab} = -65$ $\mathbf{a} = -13$ $\mathbf{b} = 5$
39. $\mathbf{x}^2 + \mathbf{18x} + 77 = \mathbf{b}$
 $\mathbf{b} + \mathbf{a} = 18$ $\mathbf{ab} = 77$ $\mathbf{a} = 7$ $\mathbf{b} = 11$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

37.
$$\mathbf{x}^2 + \mathbf{19x} - \mathbf{20} = (\mathbf{x} - \mathbf{1})(\mathbf{x} + \mathbf{20})$$

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 $\mathbf{b} + \mathbf{a} = -8$ $\mathbf{ab} = -65$ $\mathbf{a} = -13$ $\mathbf{b} = 5$
39. $\mathbf{x}^2 + \mathbf{18x} + 77 =$
 $\mathbf{b} + \mathbf{a} = 18$ $\mathbf{ab} = 77$ $\mathbf{a} = 7$ $\mathbf{b} = 11$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

37.
$$x^{2} + 19x - 20 = (x - 1)(x + 20)$$

 $b + a = 19$ $ab = -20$ $a = -1$ $b = 20$
38. $x^{2} - 8x - 65 = (x - 13)(x + 5)$
 $b + a = -8$ $ab = -65$ $a = -13$ $b = 5$
39. $x^{2} + 18x + 77 = (x)$
 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

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 $b + a = -8$ $ab = -65$ $a = -13$ $b = 5$
39. $x^{2} + 18x + 77 = (x + 1)(x + 1)(x + 1)(x + 1)(x + 1)(x + 1)(x + 1))$
 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

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 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

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39. $x^{2} + 18x + 77 = (x + 7)(x)$
 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

Use this pattern.

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 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

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39. $x^{2} + 18x + 77 = (x + 7)(x + 11)$
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Factor each of the following completely.

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$$x^{2} + 19x - 20 = (x - 1)(x + 20)$$

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39. $x^{2} + 18x + 77 = (x + 7)(x + 11)$
 $b + a = 18$ $ab = 77$ $a = 7$ $b = 11$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

40. $x^2 - 20x + 36 =$

41. $x^2 + 13x + 42 =$

42. $x^2 + 7x + 12 =$

Use this pattern.

Factor each of the following completely.

40. $x^2 - 20x + 36 =$

41. $x^2 + 13x + 42 =$

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 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
42. $x^2 + 7x + 12 = (x - 1)(x - 18)$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

40.
$$x^2 - 20x + 36 = (x - 2)(x - 18)$$

 $b + a = -20$ $ab = 36$ $a = -2$ $b = -18$
41. $x^2 + 13x + 42 = (x + 6)(x + 7)$
 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
42. $x^2 + 7x + 12 = (x + 12)^2$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

40.
$$x^2 - 20x + 36 = (x - 2)(x - 18)$$

 $b + a = -20$ $ab = 36$ $a = -2$ $b = -18$
41. $x^2 + 13x + 42 = (x + 6)(x + 7)$
 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
42. $x^2 + 7x + 12 = (x + 3)$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

40.
$$x^2 - 20x + 36 = (x - 2)(x - 18)$$

 $b + a = -20$ $ab = 36$ $a = -2$ $b = -18$
41. $x^2 + 13x + 42 = (x + 6)(x + 7)$
 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
42. $x^2 + 7x + 12 = (x + 3)$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

40.
$$x^2 - 20x + 36 = (x - 2)(x - 18)$$

 $b + a = -20$ $ab = 36$ $a = -2$ $b = -18$
41. $x^2 + 13x + 42 = (x + 6)(x + 7)$
 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
42. $x^2 + 7x + 12 = (x + 3)$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

40.
$$x^2 - 20x + 36 = (x - 2)(x - 18)$$

 $b + a = -20$ $ab = 36$ $a = -2$ $b = -18$
41. $x^2 + 13x + 42 = (x + 6)(x + 7)$
 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
42. $x^2 + 7x + 12 = (x + 3)(x + 3)(x + 3)$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

40.
$$x^2 - 20x + 36 = (x - 2)(x - 18)$$

 $b + a = -20$ $ab = 36$ $a = -2$ $b = -18$
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 $b + a = 13$ $ab = 42$ $a = 6$ $b = 7$
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42. $x^2 + 7x + 12 = (x + 3)(x + 4)$
 $b + a = 7$ $ab = 12$ $a = 3$ $b = 4$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43. $x^2 + 9x + 8 =$

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

Use this pattern.

 $x^{2} + (b + a)x + ab = (x + a)(x + b)$

Factor each of the following completely.

43. $x^2 + 9x + 8 =$

44. $x^2 + 8x + 12 =$

$$45. \quad x^2 - 3x + 2 = _$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 =$

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 =$

44. $x^2 + 8x + 12 =$

$$45. \quad x^2 - 3x + 2 = _$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 = _$

b + a =

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 = _$

b + a = 9

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

Use this pattern. $x^2 + (b + a)x + ab = (x + a)(x + b)$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 = _$

b + a = 9

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 = _$

b + a = 9

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

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Factor each of the following completely.

43. $x^2 + 9x + 8 =$

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45. $x^2 - 3x + 2 =$

Use this pattern. $x^{2} + (b + a)x + ab = (x + a)(x + b)$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 = _$

b + a = 9 ab = 8

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

Use this pattern. $x^{2} + (b + a)x + ab = (x + a)(x + b)$

Factor each of the following completely.

43. $x^2 + 9x + 8 =$

b + a = 9 ab = 8

44. $x^2 + 8x + 12 =$

45. $x^2 - 3x + 2 =$

Use this pattern.

 $x^{2} + (b + a)x + ab = (x + a)(x + b)$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 =$

b + a = 9 ab = 8 a = b =

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43. $x^2 + 9x + 8 =$

b + a = 9 ab = 8 a = 1 b =

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43. $x^2 + 9x + 8 =$

b + a = 9 ab = 8 a = 1 b = 8

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 $43. \quad x^2 + 9x + 8 =$

b + a = 9 ab = 8 a = 1 b = 8

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$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $43. \quad x^2 + 9x + 8 =$

b + a = 9 ab = 8 a = 1 b = 8

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^2 + 9x + 8 = (x - 1) + 0$$

b + a = 9 ab = 8 a = 1 b = 8

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^2 + 9x + 8 = (x + 1)^{-1}$$

b + a = 9 ab = 8 a = 1 b = 8

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^2 + 9x + 8 = (x + 1)$$

b + a = 9 ab = 8 a = 1 b = 8

44. $x^2 + 8x + 12 =$

45.
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Factor each of the following completely.

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$$x^2 + 9x + 8 = (x + 1)$$

b + a = 9 ab = 8 a = 1 b = 8

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^2 + 9x + 8 = (x + 1)(x + 3) = 8$$

b + a = 9 ab = 8 a = 1 b = 8

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^2 + 9x + 8 = (x + 1)(x + b) + a = 9$$
 $ab = 8$ $a = 1$ $b = 8$

44. $x^2 + 8x + 12 =$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

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b + a = 9 ab = 8 a = 1 b = 8

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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 $b + a =$

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Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 =$
 $b + a = 8$

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$$x^2 - 3x + 2 =$$

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 =$
 $b + a = 8$

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$$x^2 - 3x + 2 =$$

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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 $b + a = 8$

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$$x^2 - 3x + 2 =$$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

43.
$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 =$
 $b + a = 8$ $ab =$

45.
$$x^2 - 3x + 2 =$$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

43.
$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 =$
 $b + a = 8$ $ab = 12$

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$$x^2 - 3x + 2 =$$

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$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43. $x^{2} + 9x + 8 = (x + 1)(x + 8)$ b + a = 9 ab = 8 a = 1 b = 844. $x^{2} + 8x + 12 =$ b + a = 8 ab = 12

$$45. \quad x^2 - 3x + 2 = _$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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 $b + a = 8$ $ab = 12$ $a = 2$ $b =$

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Factor each of the following completely.

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 =$
 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

45.
$$x^2 - 3x + 2 =$$

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Factor each of the following completely.

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

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44. $x^{2} + 8x + 12 = (x + 1)(x + 8)$
 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

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Use this pattern.

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 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

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 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

45.
$$x^2 - 3x + 2 =$$

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Factor each of the following completely.

43.
$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 = (x + 2)$
 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

45.
$$x^2 - 3x + 2 =$$

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Factor each of the following completely.

43.
$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 = (x + 2)(x)$
 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 = (x + 2)(x + 12)(x + 12)(x$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

43.
$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 = (x + 2)(x + 6)$
 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

45.
$$x^2 - 3x + 2 =$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

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 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$

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 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$
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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 = (x + 2)(x + 6)$
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Factor each of the following completely.

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$$x^{2} + 9x + 8 = (x + 1)(x + 8)$$

 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$
45. $x^{2} - 3x + 2 =$
 $b + a = -3$

Factor each of the following completely.

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 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
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$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

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 $b + a = 9$ $ab = 8$ $a = 1$ $b = 8$
44. $x^{2} + 8x + 12 = (x + 2)(x + 6)$
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Factor each of the following completely.

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 $b + a = 8$ $ab = 12$ $a = 2$ $b = 6$
45. $x^{2} - 3x + 2 = (x - b) = 6$
 $b + a = -3$ $ab = 2$ $a = -1$ $b = -2$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

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45. $x^{2} - 3x + 2 = (x - 1)(x - 1)(x - 1)$
 $b + a = -3$ $ab = 2$ $a = -1$ $b = -2$

Use this pattern.

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Factor each of the following completely.

46. $x^2 - 9x + 20 =$

47. $x^2 - 8x + 15 =$

48. $x^2 - 11x + 24 =$

Use this pattern.

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 $46. \quad x^2 - 9x + 20 =$

47. $x^2 - 8x + 15 =$

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$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

46. $x^2 - 9x + 20 =$

47. $x^2 - 8x + 15 =$

48. $x^2 - 11x + 24 =$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $46. \quad x^2 - 9x + 20 = _$

b + a =

47. $x^2 - 8x + 15 =$

48. $x^2 - 11x + 24 =$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $46. \quad x^2 - 9x + 20 = _$

b + a = -9

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

Use this pattern.

Factor each of the following completely.

 $46. \quad x^2 - 9x + 20 =$

b + a = -9

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

 $46. \quad x^2 - 9x + 20 = _$

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47. $x^2 - 8x + 15 =$

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 $46. \quad x^2 - 9x + 20 = _$

b + a = -9 ab = 20

47. $x^2 - 8x + 15 =$

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Factor each of the following completely.

 $46. \quad x^2 - 9x + 20 = _$

b + a = -9 ab = 20

47. $x^2 - 8x + 15 =$

48. $x^2 - 11x + 24 =$

Use this pattern.

Factor each of the following completely.

 $46. \quad x^2 - 9x + 20 =$

b + a = -9 ab = 20 a = b =

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

Use this pattern.

Factor each of the following completely.

46. $x^2 - 9x + 20 =$

b + a = -9 ab = 20 a = -4 b =

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

Use this pattern.

Factor each of the following completely.

46. $x^2 - 9x + 20 =$

b + a = -9 ab = 20 a = -4 b = -5

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

Use this pattern.

Factor each of the following completely.

46. $x^2 - 9x + 20 =$

b + a = -9 ab = 20 a = -4 b = -5

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

46. $x^2 - 9x + 20 =$

b + a = -9 ab = 20 a = -4 b = -5

47. $x^2 - 8x + 15 =$

 $48. \quad x^2 - 11x + 24 = _$

$$46. \ x^2 - 9x + 20 = (x)$$

$$b + a = -9$$
 $ab = 20$ $a = -4$ $b = -5$

47.
$$x^2 - 8x + 15 =$$

$$48. \quad x^2 - 11x + 24 = _$$

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

$$46. \ x^2 - 9x + 20 = (x - 1)^{-1}$$

$$b + a = -9$$
 $ab = 20$ $a = -4$ $b = -5$

47. $x^2 - 8x + 15 =$

$$48. \quad x^2 - 11x + 24 = _$$

Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

46.
$$x^2 - 9x + 20 = (x - 4)$$

b + a = -9 ab = 20 a = -4 b = -5

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Use this pattern.

$$x^{2} + (b + a)x + ab = (x + a)(x + b)$$

Factor each of the following completely.

46.
$$x^2 - 9x + 20 = (x - 4)(x - 4) + a = -9$$
 $ab = 20$ $a = -4$ $b = -5$

47. $x^2 - 8x + 15 =$

$$48. \quad x^2 - 11x + 24 = _$$

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$$x^2 - 9x + 20 = (x - 4)(x - 4)(x - 4) = -9$$
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Factor each of the following completely.

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46.
$$x^2 - 9x + 20 = (x - 4)(x - 5)$$

 $b + a = -9$ $ab = 20$ $a = -4$ $b = -5$
47. $x^2 - 8x + 15 =$
 $b + a = -8$

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$$x^2 - 11x + 24 =$$

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 $b + a = -8$ $ab = 15$ $a = -3$ $b =$

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 $b + a = -8$ $ab = 15$ $a = -3$ $b = -5$

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Good luck on your homework !!

Use this pattern.

 $x^{2} + (b + a)x + ab = (x + a)(x + b)$