

Name \_\_\_\_\_

Date \_\_\_\_\_

### Reporting Category 2 Notes (A.4.A)

#### Solving for a Variable:

When solving an equation, the goal is to get the variable by itself on one side of the equal sign. You do this by performing the opposite operation to both sides to undo the addition or subtraction, then undo the multiplication or division.

Example. Given the equation below, we would solve to find  $x$  as follows.

$$\begin{array}{l} \text{Solve: } 26 = 2x \\ \frac{26}{2} = \frac{2x}{2} \end{array}$$

#### Combining Like Terms:

You can only combine terms that have the same variable.

$$\begin{array}{l} \textcircled{8a} + \boxed{6c} - \textcircled{2a} + \boxed{5c} \\ 8a - 2a + 6c + 5c \\ 6a + 11c \end{array}$$

**\*Remember to keep the sign with the number!!**

#### Distributive Property:

The distributive property is used when a number is in front of the parenthesis.

$$8(a+c)$$

**\*Make sure you multiply everything in the parenthesis by the number outside.**

$$8 \times a + 8 \times c$$

$$8a + 8c$$

Or you can use the box method:

	$a$	$+ c$
8		

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**Multiplying Polynomials**

We covered two different methods to multiply polynomials. The BOX method and FOIL. Each method is shown below to multiply the polynomials  $(3x - 4)$  and  $(2x + 5)$

BOX Method.

$$\begin{array}{r}
 3x - 4 \\
 2x \begin{array}{|c|c|} \hline 6x^2 & -8x \\ \hline \end{array} \\
 + 5 \begin{array}{|c|c|} \hline 15x & -20 \\ \hline \end{array}
 \end{array}$$

FOIL Method.

$$\begin{array}{c}
 \text{Multiply First} \\
 \text{Outer} \\
 \text{Inner} \\
 \text{Last} \\
 (3x - 4)(2x + 5) \\
 6x^2 + 15x - 8x - 20
 \end{array}$$

Then combine like terms to simplify.

$$6x^2 + 7x - 20$$

To factor a trinomial means to transform it to a product of two or more factors. (Undo the multiplying.) Factoring polynomials that are in the form  $ax^2 + bx + c$  can be broken up into specific steps.

**Factoring**Step 1: Make a product/sum table

Example:  
 $2x^2 - 11x + 5$

$P = 1^{\text{st}} \text{ term} \times 3^{\text{rd}} \text{ term}$	$S = 2^{\text{nd}} \text{ term}$
$P = 10$	$S = -11$
5, 2	7
-5, -2	-7
10, 1	11
<b>-10, -1</b>	<b>-11</b>

Step 2: Put selected factors in the sets.  $(x - 10)(x - 1)$ Step 3: Put each factor over the  $1^{\text{st}}$  coefficient. Simplify and reduce.

$$\frac{(x - 10)}{2} \frac{(x - 1)}{2} = (x - 5) \left(x - \frac{1}{2}\right)$$

Step 4: If the number reduces evenly you're done. If not, take the denominator of the fraction that doesn't become a whole number and swing it up to become the x coefficient.

Factors:  $(x - 5)(2x - 1)$