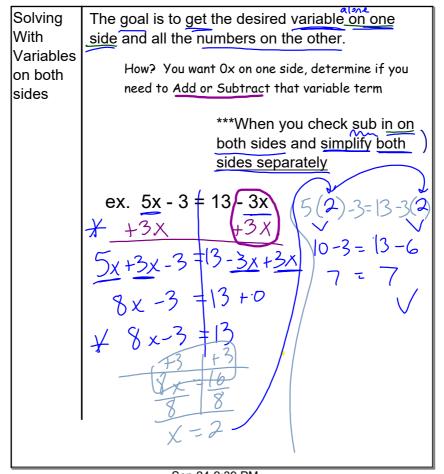Your Name

Mrs. Theo

9/14/2020

Notes

LESSON 1-3

SOLVING EQUATIONS WITH THE VARIABLE ON EACH SIDE

Jun 28-9:43 PM

Objective: To apply the properties learned before to solve multi-step equations when there are variables on both sides.

Virtue/Skill: As you get older and accomplish more, your tasks get more complicated, but you are ready. These types of equations will be used in the functions we start discussing and graphing this year. Eventually, we will be using these combined with other properties to solve complex equations or for a variable in a complex formula or function.

Jul 16-10:06 AM

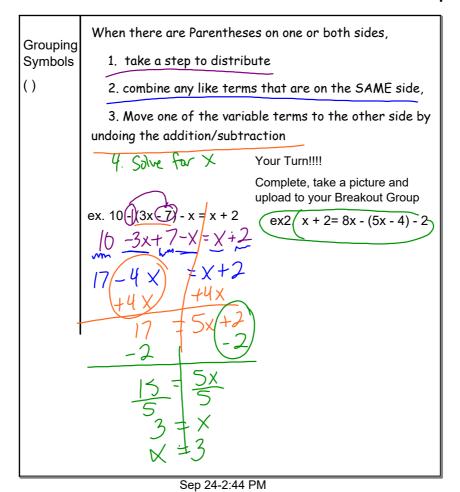| Solving With Variables on both sides	The goal is to get the desired variable <u>alone</u> <u>on one</u> <u>side</u> and all the numbers on the other.

How? You want 0x on one side, determine if you need to <u>Add or Subtract</u> that variable term

***When you check sub in <u>on</u> both sides and <u>simplify</u> <u>both</u> <u>sides separately</u>

ex. $5x - 3 = 13 - 3x$

$$\cancel{*} \quad +3x \qquad\qquad \boxed{+3x}$$

$$5x + 3x - 3 = 13 - 3x + 3x$$

$$8x - 3 = 13 + 0$$

$$\cancel{*} \quad 8x - 3 = 13$$

$$\begin{array}{c|c} +3 & +3 \\ \hline 8x & 16 \\ \hline 8 & 8 \end{array}$$

$$x = 2$$

Check:
$$5(2) - 3 = 13 - 3(2)$$
$$10 - 3 = 13 - 6$$
$$7 = 7 \checkmark$$

Combining Like Terms First	When there are <u>like terms on the SAME side</u>, combine them before getting the variables on one side.

1. <u>Combine any like terms that are on the SAME</u> side

2. <u>Move one of the variable</u> terms to the other side by <u>undoing the addition/subtraction</u>

Your Turn!!!!

Complete, take a picture and upload to your Breakout Group

ex. $\dfrac{7}{2}v - v = 3 + \dfrac{3}{2}v$

$$\dfrac{7}{2}v - \dfrac{2}{2}v = 3 + \dfrac{3}{2}v$$

$$\dfrac{5}{2}v = 3 + \dfrac{3}{2}v$$

$$-\dfrac{3}{2}v \qquad\qquad \boxed{-\dfrac{3}{2}v}$$

$$\dfrac{2}{2}v = 3$$

$$v = 3$$

ex1. $1 - s = 6 - 6s$

Grouping Symbols ( )	When there are Parentheses on one or both sides,

When there are Parentheses on one or both sides,

1. take a step to distribute

2. combine any like terms that are on the SAME side,

3. Move one of the variable terms to the other side by undoing the addition/subtraction

4. Solve for X

Your Turn!!!!

Complete, take a picture and upload to your Breakout Group

ex2 $x + 2 = 8x - (5x - 4) - 2$

ex. $10 - (3x - 7) - x = x + 2$

$10 - 3x + 7 - x = x + 2$

$17 - 4x = x + 2$

$+4x \qquad +4x$

$17 = 5x + 2$

$-2 \qquad -2$

$\dfrac{15}{5} = \dfrac{5x}{5}$

$3 = x$

$x = 3$

Sep 24-2:44 PM

Find 1.3 Portfolio work in your Quizzes Section in your Class Notebook

complete there or on paper and insert a picture of it.

$7 + 2(3x - 5) + 6x = 2x - 8$

$7 + 6x - 10 + 6x = 2x - 8$

$-3 + 12x = 2x - 8$

$\qquad -2x \qquad -2x$

$-3 + 10x = -8$

$+3 \qquad\qquad +3$

$\dfrac{10x}{10} = \dfrac{-5}{10}$

$x = -\dfrac{1}{2}$

$$\frac{2}{7}\left(14q + \frac{7}{2}\right) - 3q = 9$$

$$\frac{2}{7}(14^2 q) + \frac{2}{8}\left(\frac{7}{2}\right) - 3q = 9$$

$$4q + 1 - 3q = 9$$

$$q + 1 = 9$$
$$-1 \quad\quad -1$$
$$q = 8$$

No Solution	When the variable gets canceled and two numbers are not equal, there is no solution for the variable that will make this equation true.
	ex. 3(-2 - 3x) = -9x - 4
	1st Distribute $-6 - 9x = -9x - 4$
	$+9x \quad\quad +9x$ Variables canceled
	2nd Combine like terms $-6 = -4$
	Not true
	No Solution
All Real Numbers	When the variable gets canceled and two numbers are equal, then All Real Numbers are solutions for the variable, because any number will make this equation true.
	ex. 2(a - 8) + 7 = 5(a + 2) - 3a -19
	1st Distribute $2a - 16 + 7 = 5a + 10 - 3a - 19$
	2nd Combine like terms on same side $2a - 9 = 2a - 9$
	$-2a \quad\quad -2a$
	$-9 = -9$
	Always True
	All Real Numbers answer, any # will work for x
	or
	Infinitely Many

Sep 24-2:48 PM