SM2   Lesson 1-2 *HANDOUT*
Solving Single-Unknown Linear Equations

Your turn: solve the following equations using "one step—rewrite—justify"

$-5 + x = 13$ (1) Addition Property of Equality and
(2) Inverse Property of Addition.

(3) Identity Property of Addition.

$-9 = x + 4$

Solve the following equations using "one step—rewrite—justify"   Hint: gather x's to one side of the equal sign.

$2x = x + 5$ (1) Addition Property of Equality and
(2) Inverse Property of Addition.

(3) Identity Property of Addition.

$2x - 6 = x + 4$

Your turn: solve the following equations using "one step—rewrite—justify"

$5x + 2 = 17$ (1) Subtraction Property of Equality
(2) inverse property of addition,
(3) Identity property of addition

(4) Division property of equality
(5) Inverse Property of Multiplication
(6) Identity Property of Multiplication.

Turn coefficients into ones and addends into zeroes so that they disappear!

Your turn: solve using "1 step—rewrite—justify" (identify the properties that you used)

1. 2   = 3 + x

2. 12 − x = 3x

3. -27 = 2x − 3 + 2x

4. $\dfrac{x}{3} = -2$

5. $\dfrac{2x}{5} - 4 = -8$

6. $3x - 8 = 1$

The <u>Distributive Property</u>   (of multiplication over addition)

When multiplying a factor and the sum of two or more addends, the factor can be <u>distributed</u> to each of the addends.

2(x + 4)   →   2x + 2(4)   →   2x + 8

Factor   Addends

<u>Your Turn</u>: Use the distributive property to <u>simplify</u> the expression

4(x + 5)   →   _____

-3(x – 4)   →   _____

5(3x – 2)   →   _____

<u>Simplify using TWO steps!!</u>

5 + 2(x + 4) → _____   2x – 3(x -1) → _____

→ 5 + 2x + 8   → _____

→ 2x + 13   → _____

3 – 2(x + 5) → _____   4 – 3x – (-5x – 2) → _____

→ _____   → _____

→ _____   → _____

<u>Solve</u>

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

$-5(x + 2) = (2x - 7)$

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

<u>Solve for 'k'</u>

$2k - 3m = 5$

$\dfrac{7k - 3y}{2} = 4x$

$4m - 3ky = 7$