Day 10/11 Homework

Name:_____ Date:_____

1. Write the other side of this equation so that it is true for **all** values of x:

$\frac{1}{2}(6x - 10) - x =$ $\frac{1}{2}(6x-10)-x$

OR

$3x-5-x$

OR

$2x-5$

2. Bill sais that the equation $2x + 2 = x + 1$ has no solutions because the left-hand side of the equation is **double** the right-hand side.

   a. Do you agree with Bill?

   NO

   b. Explain your reasoning (2-5 sentences).

   Bill is not correct that there is no solution because solving for it shows there exists a solution. while he is right that the left is double the right side, that does not imply there is not a solution.

   $2x+2=x+1$

   $x+2=1$

   $\boxed{x=-1}$

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3. For the given set of equations, determine it has the following:

    1. No Solution

    2. Exactly one solution

    3. Infinitely many solutions

    Once you have determined the following, provide a written explanation as to how and you determined your choice. If an equation has **one** solution, solve the equation to solve for the variable.

    Set:

    a. $-5x - 3x + 2 = -8x + 2$

    $-8x + 2 = -8x + 2$

    infinitely many solutions

    b. $-5x - 3x - 4 = -8x + 2$

    $-8x - 4 \neq -8x + 2$

    NO solution.

    c. $-5x - 4x - 2 = -8x + 2$

    $-9x - 2 = -8x + 2$

    $-2 = x + 2$

    $\boxed{-4 = x}$ one solution.

4. Carlos was looking at the equation $6x - 4 + 2(5x + 2) = 16x$. He said "I can tell right away that there are no solutions because if you look at the left side, we have $6x + 10x$ and a bunch of constants, but you only have $16x$ on the right side".

    a. Do you agree with Carlos?

    Nope

    $6x - 4 + 2(5x + 2) = 16x$

    $6x \boxed{-4} + 10x \boxed{+4} = 16x$

    $(10x + 6x) + (4 - 4) = 16x$

    $16x = 16x$

    b. Explain your reasoning using 2-5 sentences. Provide "proof" to your justification.

    Carlos's statement does not imply there does not exist a solution. If we solve it algebraically we can see there exists infinitely many solutions:

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5. Complete each equation so there are **Infinite number of solutions:**

(HINT: a number goes in the blank)

a. $3x + 6 = 3(x + \underline{2})$ ✓

$3x+6=3x+6$

b. $x - 2 = -(\underline{2} - x)$ ✓

$x-2=-2+x$

1. Complete each equation so there are **no solutions:**

(HINT: a number goes in the blank)

a. $3x + 6 = 3(x + \underline{1})$

$3x+6 \neq 3x+3$

b. $x - 2 = -(\underline{1} - x)$

$x-2 \neq -1+x$

any number but 2 makes it true for NO solutions!