

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 says 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.

$$\hookrightarrow 2x + 2 = x + 1$$

$$x + 2 = 1$$

$$x = -1$$

Day 10/11 Homework

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

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

$$-2 = x + 2$$

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

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".

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

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

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

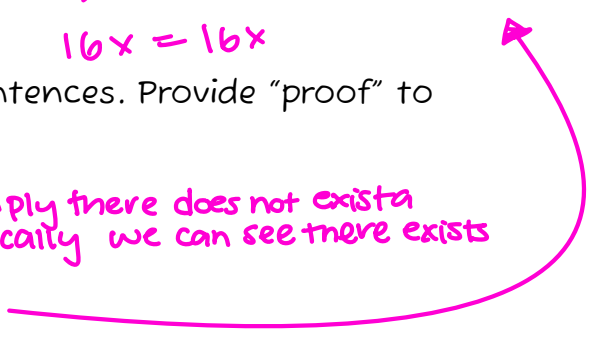
$$16x = 16x$$

a. Do you agree with Carlos?

Nope

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:



Day 10/11 Homework

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!