

Warm Up: Lesson 12: Solving Equations Day 1

1.) Will the equation, $x + 1 = 5$ have the same solution as $1 + x = 5$?

Yes or No Why? _____

2.) Will the equation, $x + 1 = 5$ have the same solution as $x + 1 + 2 = 5 + 2$?

Yes or No Why? _____

3.) Will the equation, $x + 1 = 5$ have the same solution as $2(x + 1) = 2 \cdot 5$?

Yes or No Why? _____

So, in addition to applying the commutative, associative and distributive properties to equations, what else can be done to equations that does not change the solution set?

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* _____

Solving One Step equations:

1.) $x + 5 = 8$

2.) $x - 3 = -1$

3.) $x + 11 = -27$

4.) $2x = 8$

5.) $3x = -30$

6.) $-5x = -15$

7.) $\frac{x}{8} = 4$

8.) $\frac{x}{5} = -2$

9.) $\frac{2x}{3} = 2$

10.) $\frac{-3x}{5} = 6$

Remember an Identity is ALWAYS TRUE!!! Decide if the following equations are IDENTITIES:

1.) $a + a^2 = a(a + 1)$

2.) $2x^2 + 4x = 4x + 2x^2$

3.) $\frac{2x}{2x} = 1$

4.) $2x^2 + 3x^3 = 5x^5$

Create your own identity for each of the given expressions:

5.) $2 + 3x =$

6.) $(2 \cdot x) \cdot z =$

7.) $(x + 3)^2 =$

Solve these one-step equations:

8.) $x + 5 = 7$

9.) $x - 7 = 8$

10.) $x - 3 = -10$

11.) $4x = 20$

12.) $-8x = -88$

13.) $\frac{x}{9} = -5$

14.) $\frac{3x}{2} = 6$

15.) $\frac{-1x}{7} = -5$

Warm Up: Lesson 12: Solving Equations with two or more steps

Consider the equation $x^2 + 1 = 7 - x$.

- a. Verify that this has the solution set $\{2, -3\}$. Draw this solution set as a graph on the number line. *We will later learn how to show that these happen to be the ONLY solutions to this equation.*
- b. Let's add four to both sides of the equation and consider the new equation _____ Verify 2 and -3 are still solutions.
- c. Let's now add x to both sides of the equation and consider the new equation _____ Are 2 and -3 still solutions?
- d. Let's add -5 to both sides of the equation and consider the new equation _____. Are 2 and -3 still solutions?

****Remember you can add, subtract, multiply or divide the same number to both sides of the equation and the solution set will not change!****

Now we see that we can also add a _____ to both sides of an equation and the solution set will not change!

Explain why the following equations have the same solution set by recognizing properties, rather than solving:

$$2x + 3 = 13 - 5x$$

and

$$6 + 4x = -10x + 26$$

Solving Equations with two or more steps:

Find two different ways to arrive at the answer $x = 5$ for the equation $2x + 8 = 18$

Strategy #1

Strategy #2

Find two different ways to arrive at the answer $x = 10$ for the equation $3(n - 6) = 12$

Strategy #1

Strategy #2

Solve the following: $-4 = \frac{r}{20} - 5$

$$\frac{v+9}{3} = 8$$

Name _____

MYP Level 4: Algebra I

Warm Up: Lesson 12: Solving Equations with multi-steps

There are 4 different ways to solve the equation: $3x + 4 = 8x - 16$ and arrive at the answer of $x = 4$.

<p>Strategy #1: Subtract 3x from both sides</p>	<p>Strategy #2: Subtract 4 from both sides</p>
<p>Strategy #3 Subtract 8x from both sides</p>	<p>Strategy #4 Add 16 to both sides</p>

Choose one way to solve the following equation: $2(6b + 8) = 4 + 6b$

Solve each of the following equations:

1.) $39 - 8n = -8(3 + 4n) + 3n$

2.) $\frac{x+4}{3} = \frac{x+2}{5}$