**Module 2: Solving Equations and Inequalities**

**Lesson 2: Solving Equations with Justifications**

**Objectives:**

* I know the properties of real numbers and properties of equality
* I understand how to use the properties of real numbers and properties of equality to justify steps in solving equations
* I can use the properties of real numbers to solve equations

**Agenda:**

* White board
* Group work
* Challenge yourself

**Vocabulary:**

* Associative, Commutative, Distributive, Equivalent expressions, Multiplication property of equality, addition property of equality.

**Focus Questions:**

1. How can we use the properties of real numbers to create equivalent expressions?
2. How can we use the multiplication and addition properties of equality to solve equations?

**Web Support:**

* <http://mathbitsnotebook.com/Algebra1/LinearEquations/LEjustify.html>
* <https://www.youtube.com/watch?v=-GA0Wn9Tq2E>

**Web Practice**

* <http://mathbitsnotebook.com/Algebra1/LinearEquations/LEJustifyPractice.html>

**Homework:** Finish the packet

**Vocabulary: Distributive**

 **Commutative**

 **Associative:**

 **Warm up**

1. **Solve the following Equations and check you answer.**

**A)** $1 + 7x = 8 + 6x + 3x + 9$ B) $5(1 - 6x) - 3x = 104$

**Name that property**


1. **Identify the property used in the following equations:**

|  |  |
| --- | --- |
| **a.**$$7\left(x-2\right)=7\left(x\right)-7(2)$$ | **b.** $$\left(y+17\right)+13=y+(17+13)$$ |
| **c.**  $4. 11=11∙4$ |  **d.** $$-3∙\left(b∙c\right)=(-3∙b)∙c$$ |
| **e.** $$3\left(x-2\right)=3x-6$$ |  f. $$14+y=y+14$$ |

1. Give a property of real numbers (associative, commutative, or distributive) or a property of equality (addition or multiplication) that justifies each step in the following equation:



1. (REGENTS) A method for solving $5\left(x-2\right)-2\left(x-5\right)=9$ is shown below. Identify the property used to obtain each of the two indicated steps.



Continued Practice: Solve the following equations:

1. $\frac{9}{x-7}=\frac{6}{x}$ b. $\frac{x}{x-3}=\frac{2}{3}$

$c. 5(4x - 5) - 5 = -6 + 8x$ D. $-2\left(-8x+1\right)+2\left(-5x+6\right)= 5x+2x$

e. $\frac{3}{4}\left(2x+1\right)=2$. F. $\frac{5}{4}y=\frac{1}{2}- \frac{7}{10}$

G. $\frac{x+3}{2}= \frac{2x-3}{7}$

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_

Homework 2-1: Solving Equations with properties.

List the steps for solving these equations. Solve and check your answers.

|  |  |
| --- | --- |
| 1. $ 5= \frac{6n-2}{n+1}$
 | 1. $ \frac{3x-1}{4}=\frac{x+1}{-2}$
 |
| C. $\frac{3\left(x+2\right)}{4}-1=5$ | D. $\frac{-6(x+3)}{4}=x$  |

