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***Infinity Solution and No solutions/ Notes***

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| **Essential Questions?** | **Steps for solving equations** |
| 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   How do we solve equations with variables on both sides  How do we identify equations that are identities or have no solution | 1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

**New Concepts**

**Identity:**

An equation has **no solution or null set**  if no value of the variable makes the equation true.

Example : 2*x* = 2*x* + 1

An equation that is true for every value of the variable is an **identity and has Infinitely many solutions**

Example 2*x + 5*  = 2*x* + 5

Example 1: **4 - 12 + 4*x* = 4*x* + 2 – 10**

**Example 2** *-*2 + 15 + 4*a* = 4a + 13 Example 3 2 - 3 + 9*d* + 7 - 6*d = -*3d + 6

**Guided Practices**

Example 1 -4*h* + 20 + 3 - 2*h* = -6h – 1

Example 2 2 + 4*k* - 5*k* – 1 = -19 + 2*k*

Example 3 5 + 3*p* – 2 + 7*p* = -1 - 11*p*

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| Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | No Solution / Identity Solution |
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***Directions: SOLVE and CHECK or identify if the equation has NO SOLUTION / IDENTITY SOLUTION***

1. 3n + 4n = 63 + 7n 3. 4b - 4 - 8b = -4b -16 + 12
2. -2x - 3 + 8x = -27 - 6x 4. 2c = 4c + 7 – 3c + 8

Part 2. Solve the following equations

1. 2 + 8m = 2*m* – 12 – *m 3.* 5 + 3*p* – 2 + 7*p* = -1 - 11*p*

1. -2x – 3 + 3x = -45 - 5x 4. -11c = 4c + 7 - 14c + 8

**Lesson 2-4, Example 3 Check Understanding**

Choose whether each equation is an *identity* or whether it has *no solution*.

Top of Form

1. 9 + 5*n* = 5*n* – 1
   1. identity
   2. no solution
2. 9 + 5*x* = 7*x* + 9 – 2*x*
   1. identity
   2. no solution

Bottom of Form