CH.3, L6 – TYPES OF SOLUTIONS

Objective: Given a linear equation, I will identify and create equations that have no solution or are an identity.

Think About It: Solve the following equation to determine the solution.

A. $3x + 4 - x = 2x + 3$	B. $2(3x - 1) = 6x - 2$

Big Idea:

Partner Practice: *(Low Difficulty)*

1. Determine the number of solutions for each equation:

a. $2x - x + 7 = x + 3 + 4$	b. $-2(x + 1) = -5 + (-2x)$	c. $2x + 9 = 3(x - 3)$

CFS:

1. Equations start with definition of the number of solutions *(Ex: $a = a$, $a = b$ or $x = a$)*
2. Properties of equality are used to add more to the equation
3. When prompted, combining like-terms and/or the distributive property is included
4. Final equation is checked by simplifying

2. Complete the equation to satisfy the condition:

a. No Solution: $-x + 7x - 8 =$ _____	b. Infinite Solutions: $6x +$ _____ = $2x +$ _____

Partner Practice: *(Medium Difficulty)*

3. Which value of a and b would make the equation $5x + ax - 7 = 6x + b$ have NO solution? Explain your answer.

_____ _____ _____ _____ _____ _____ _____ _____	

4. Write a multistep equation that has one solution. To simplify the equation, the following steps are required:
   - Using the distributive property.
   - Combining like terms.
   - Moving variables to the same side.

CFS:

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5. Explain how you can use properties of equality to write balanced equations.

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6. Step A: Write a multistep equation that has no solution. To simplify the equation, the following steps are required:
   - Using the distributive property.
   - Combining like terms.
   - Moving variables to the same side.

   Step B: Describe how you would change your equation to have an infinite number of solutions.

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7. Step A: Create an equation that will have an infinite number of solutions, requires the distributive property on the left side of the equation, and combining like-terms on the right side of the equation.

Step B: Revise your equation in Step A with one operation to create an equation with no solution and check it.

CFS:

1. Equations start with definition of the number of solutions *(Ex: $a = a$, $a = b$ or $x = a$)*
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3. When prompted, combining like-terms and/or the distributive property is included
4. Final equation is checked by simplifying

Partner Practice: *(Hard Difficulty)*

8. Write a multistep equation that has no solution. The equation must meet the following criteria:
   - Using the distributive property.
   - The coefficient of the parentheses to the distributive property is a fraction
   - Combining like terms.
   - Variables start all on the same side as where the distributive property is being used.
   - At least two more rational numbers.
   - Minimum of 6 terms total.

9. Explain how you could change the equation to quickly have an infinite number of solutions and/or one solution.

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4. Final equation is checked by simplifying