**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_ Score:\_\_\_\_\_**

**U10 HW #1** Solving Multi-Step Linear Equations with Different Solving Outcomes

**Directions:** Without solving completely, determine the number of solutions of each of the equations.

|  |  |  |
| --- | --- | --- |
| 1. $x-211=x$
 | 1. $3\left(m-3\right)=3m-9$
 | 1. $5-x=-x+5$
 |
| 1. $-4m+12=4m+12$
 | 1. $-3\left(x+2\right)=-3x+6$
 | 1. $\frac{x-3}{5}=\frac{x}{5}-\frac{3}{5}$
 |

**Directions:** Solve the following equations. If there is one solution, state what the solution is. Otherwise, state if there are infinitely many solutions or no solution. Show all your work.

|  |  |
| --- | --- |
| 1. $3x+1-3\left(x-1\right)=4$
 | 1. $3\left(a+6\right)-2\left(a-6\right)=6$
 |
| 1. $3\left(r-4\right)=3r-4$
 | 1. $2\left(x+1\right)=3x+4$
 |
| 1. $3-\left(4b-2\right)=3-4b+2$
 | 1. $3-\left(4b-2\right)=3-4b-2$
 |

|  |  |
| --- | --- |
| 1. $2y-5y+6=-(3y-6)$
 | 1. $f+1=7f+12-11-6f$
 |
| 1. $12+8a=6a-6$
 | 1. $\frac{1}{2}\left(6m-10\right)=3m-5$
 |

**Directions:** Fill in the blanks of the following equations to meet the criteria given. In some cases, there may be more than one correct answer. Justify your answer.

1. An equation that yields one solution: $8x+ \\_\\_\\_\\_=\\_\\_\\_\\_x+10$
2. An equation that yields no solution: $8x+ \\_\\_\\_\\_=\\_\\_\\_\\_x+10$
3. An equation that yields infinitely many solutions: $8x+ 24=\\_\\_\\_(\\_\\_\\_x+\\_\\_\\_\\_)$

**Directions:** Create your own equations to meet the following criteria.

1. An equation that yields one solution of $x=5$.
2. An equation that yields no solution.
3. An equation that yields infinitely many solutions.