

5-5 Solving Multistep Equations and inequalities

Steps

1. simplify by distributing (across parenthesis)
2. Combine like terms - constants
3. Order matters \leftarrow flip flop inequality if you rearrange
variable inequality constant
(the arrow points in the direction you shade)
4. multiply or divide by a negative
flip flop the inequality

No Solution or All real numbers as a solution

- Null set (empty set) \emptyset
(the equation does not have a solution)
- identity (all real numbers work) solution

$$3(y+5) + 25 = 3y + 10$$

$$3y - 15 + 25 = 3y + 10$$

$$3y + 10 = 3y + 10$$

$$\begin{array}{r} -3y \\ \hline \end{array}$$

$$0 + 10 = 10$$

$$10 = 10 \text{ always}$$

All Real Numbers

$$-5x - 14 = 2(2x + 3) - 9x$$

$$-5x - 14 = 4x + 6 - 9x$$

$$\begin{array}{r} -5x - 14 = -5x + 6 \\ +5x \quad \quad \quad +5x \\ \hline \end{array}$$

$$0 - 14 = 6$$

$$-14 \neq 6 \text{ (does not equal!)}$$

No Solution

$$-2(3r+4) = -5r-8-r$$

$$\begin{array}{r} -6r-8 \\ +6r \\ \hline \end{array} = \begin{array}{r} -6r-8 \\ +6r \\ \hline \end{array}$$

$$0-8 = -8$$

$$-8 = -8$$

All Real Numbers

$$14 + 8w = 4(8 + 2w)$$

$$\begin{array}{r} 14 + 8w = 32 + 8w \\ -8w \quad \quad -8w \\ \hline \end{array}$$

$$14 + 0 = 32$$

$$14 \neq 32$$

\emptyset No solution

5-5 even #s to H.O.T.(s) (#18-50)
add # 56, 58, 74