Grade 6 Math   Name: _____

Date: _____   Core/Period: _____

Solutions to Equations and Inequalities Guided Notes with Answers

SOLUTION? It's the value or values that make an equation or inequality true.

EXAMPLE:

Is **t = 5** a solution to the following **equations**?

$$6t + 13 = 6t - 13 \qquad 14 - 2t = 2t - 14 \qquad 9t \div 9 = 4t \div 4$$

STEP 1: Substitute – "plug-in" or replace the variable with the possible solution.

$$6(5) + 13 = 6(5) - 13 \qquad 14 - 2(5) = 2(5) - 14 \qquad 9(5) \div 9 = 4(5) \div 4$$

STEP 2: Simplify – evaluate the expression(s) on either side of the equation/inequality.

$$30 + 13 = 30 - 13 \qquad 14 - 10 = 10 - 14 \qquad 45 \div 9 = 20 \div 4$$
$$43 = 17 \qquad\qquad\quad 4 = -4 \qquad\qquad\quad 5 = 5$$

STEP 3: Decide – determine if the mathematical statement is true.

$$43 = 17,\text{ false} \qquad 4 = -4,\text{ false} \qquad 5 = 5,\text{ TRUE!}$$

Is **t=5** a solution for the following **inequalities**?
(* Follow the same steps as above for inequalities as equations.)

$9t \div 9 < 4t \div 4$	$9t \div 9 > 4t \div 4$	$9t \div 9 \leq 4t \div 4$	$9t \div 9 \geq 4t \div 4$
$9(5) \div 9 < 4(5) \div 4$	$9(5) \div 9 > 4(5) \div 4$	$9(5) \div 9 \leq 4(5) \div 4$	$9(5) \div 9 \geq 4(5) \div 4$
$45 \div 9 < 20 \div 4$	$45 \div 9 > 20 \div 4$	$45 \div 9 \leq 20 \div 4$	$45 \div 9 \geq 20 \div 4$
5 < 5, false	**5 > 5, false**	**5 ≤ 5, true**	**5 ≥ 5, true**
5 is not less than 5	5 is not greater than 5	5 is less than or equal to 5.	5 is greater than or equal to 5.