Name_____ Pd_____ Date_____ **Section 1.D.2**

Solving 1-Step Inequalities with Multiplication, Division, & Fractions

Let's Conduct a Mathematical Experiment

We know that the process of isolating a variable can include multiplying both sides of a mathematical statement by some number in order to get our **variable's coefficient to be 1**.

Recall:

$$-\frac{x}{4} = 2$$

$$-4 \cdot -\frac{x}{4} = 2 \cdot -4$$

$$\frac{-4}{-4}x = -8$$

$$1x = 8$$

$$x = 8$$

So, what happens if we want to multiply by a negative number when the mathematical statement is an inequality, not an equation?

$$4 > 2$$

$$-4 \cdot 4 > 2 \cdot -4$$

$$-16 > -8$$

Is this a still a true statement?

How should the comparison be stated to be true?

Key Ideas

When you multiply both sides of an inequality by a _____,

you change the meaning of the comparison, so you must _____!

**Since dividing is the same as _____,

when you divide both sides of an inequality by a _____,

you must also _____!

Complete the examples in your group by filling in the correct symbol.

Example 1

$$-3n > -12$$

$$\frac{-3n}{-3} \quad \frac{-12}{-3}$$

$$n \quad 4$$

Did you reverse the symbol? Why or why not?

Check to make sure your choice is correct.

Example 2

$$\frac{b}{2} \leq -9$$

$$2 \cdot \frac{b}{2} \quad -9 \cdot 2$$

$$b \quad -18$$

Did you reverse the symbol? Why or why not?

Check to make sure your choice is correct.

Group You Trys

REMEMBER!

- The sign of your final answer does NOT affect the inequality symbol.
- What matters is the sign of the number YOU multiply/divide both sides by.
- Choose EASY numbers to substitute when you check your answer! (0, 1, multiples of 10, etc.)

Solve Using Algebra	$-\frac{c}{3} < 2$	$4x > -32$
Check Your Solution		
Graph		
Solve Using Algebra	$-2f \leq 10$	$7 < -\frac{d}{3}$
Check Your Solution		
Graph		

Solving 1-Step Inequalities with Addition & Subtraction

No tricks! Simply use inverse operations: _____ to undo _____ and _____ to undo _____.

Ex. 1 $x + 2 > 3$ Ex. 2 $-4 + y \leq 3$ You Try $k - 7 \geq -10$