

Name _____ Date _____ Hour _____

Inequalities

- * An inequality is like an _____, except instead of one solution, _____ are possible.

- * We use _____ symbols when dealing with inequalities
 - _____ means less than
 - _____ means greater than
 - _____ means less than or equal to
 - _____ means greater than or equal to
 - _____ means not equal

- * Be cautious of negative numbers. A larger negative number is actually _____ than a smaller negative number. When in doubt, think in terms of _____.

- * It is often helpful to graph solutions to inequalities on a _____.

- * $>$ and $<$ symbols use an _____ point on the number line.

- * \geq and \leq use a _____ point on the number line.

Adding/Subtracting Inequalities

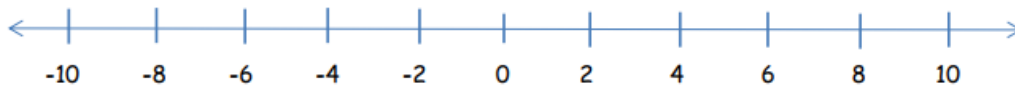
$$w - 7 \leq -10$$

$$-7.5 \geq d - 10$$

$$x + \frac{3}{4} > 1\frac{1}{2}$$

Multiplying/Dividing Inequalities

Use the number line to help you answer the questions in the table below:



First Inequality	True or False?	Action	New Inequality	True or False?
$1 < 4$	If true proceed	➔ Add 3 to both sides ➔		
$-4 < 6$	If true proceed	➔ Subtract 3 from both sides ➔		
$-1 < 5$	If true proceed	➔ multiply both sides by 2 ➔		
$-3 < 3$	If true proceed	➔ multiply both sides by -2 ➔		
$-2 < 10$	If true proceed	➔ divide both sides by 2 ➔		
$2 < 8$	If true proceed	➔ divide both sides by -2 ➔		

Use your work from the table above to answer the following questions:

- 1) Which **specific actions** caused the first inequality to become a false inequality?
- 2) Without changing the action, what could be done to the new inequality to make it true?

Solve and Graph

$$\frac{x}{-3} > -4$$

$$0.5 \leq -\frac{y}{2}$$

$$-12 \geq \frac{6}{5}m$$

$$-\frac{2}{5}h \leq -8$$

$$-5z < 35$$

$$-2a > -9$$

$$-1.5 < 3n$$

$$-4.2 \geq -0.7w$$