

Name: \_\_\_\_\_

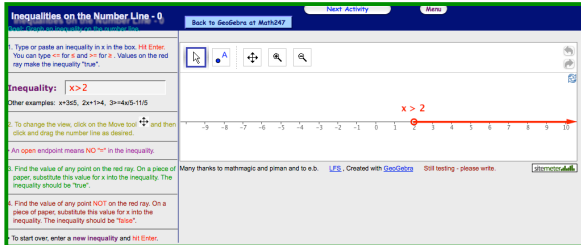
Class/Block: \_\_\_\_\_ Date: \_\_\_\_\_

## Exploration: Graphing Inequalities 2

### Part I. Introduction

In this exploration you will solve inequalities by addition and subtraction. If any number is added or subtracted from a true inequality, the resulting inequality is also true. Solve each inequality by using addition or subtraction then graph.

**Step 1: Launch the Inequalities on the Number Line - 0 applet using Firefox.**



Inequality:  $x > 2$

- Notice the inequality input box.
- Enter an inequality and hit the enter/return key
- The equation will be graphed

**Step 2: Solve the given inequality then graph.**

**Step 3: Check your solution and graph using the applet**

Example 1:

*Subtract 18 from both sides*

$$\text{Solve } 18 + x \geq 16$$

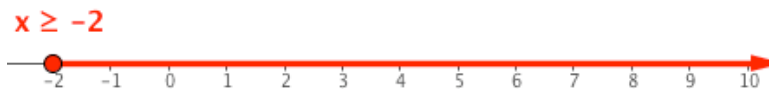
$$\begin{array}{r} -18 \\ -18 \end{array}$$

$$x \geq -2$$

a) Enter the expression into the applet to check

Inequality:  $18+x \geq 16$

b) The result looks like the graph below:



Example 2:

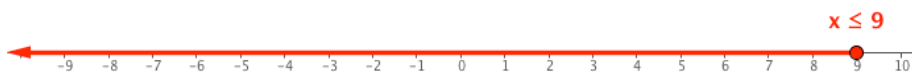
*Add 5 to both sides*

$$\text{Solve } x - 5 \leq 4$$

$$\begin{array}{r} +5 \\ +5 \end{array}$$

$$x \leq 9$$

Graph then check in the applet



Example 3:

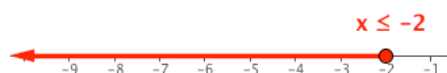
*Subtract 3x from both sides*

$$\text{Solve } 4x \leq 3x - 2$$

$$\begin{array}{r} -3x \\ -3x \end{array}$$

$$x \leq -2$$

Graph then check in the applet



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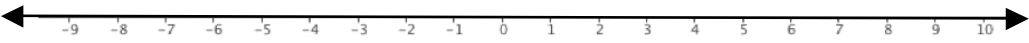
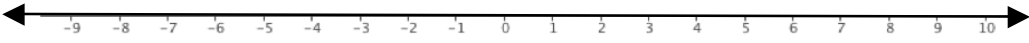
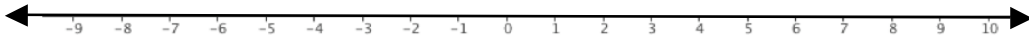
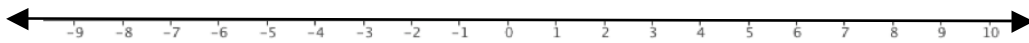
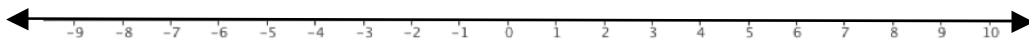
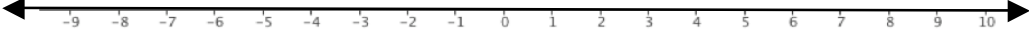
### **Part II. Problems**

Solve the inequality provided.

Predict the graph. Draw the graph of your prediction on the number line provided.

Check your answer by entering the inequality in the entry box and hitting return. Compare the result to your prediction.

**Remember** – You can enter the  $\leq$  or  $\geq$  signs by holding down the option key and the  $<$  or  $>$  symbol key.

Solve the Inequality	Graph the Solution
1) $x - 3 > -2$	
2) $x + 5 \leq 8$	
3) $x - 4 \geq 0$	
4) $8 + x < 12$	
5) $4x < 3x - 3$	
6) $5x - 2 \geq 4x + 1$	
7) $2x - 2 \leq 3x$	