

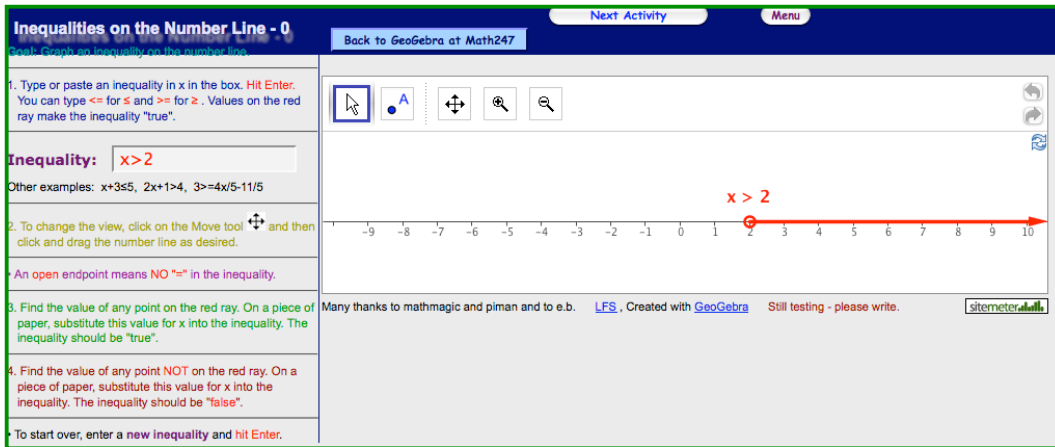
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Exploration: Graphing Inequalities 1

Part I. Introduction

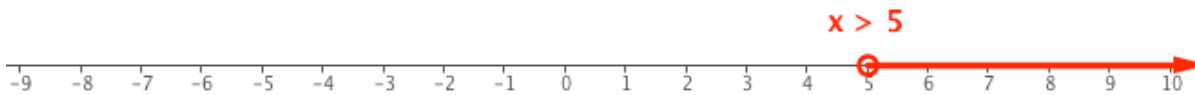
Step 1: Launch the Inequalities on the Number Line - 0 applet using Firefox.



- Notice the inequality input box. Inequality: $x > 2$
- Enter an inequality and hit the enter/return key
- The equation will be graphed

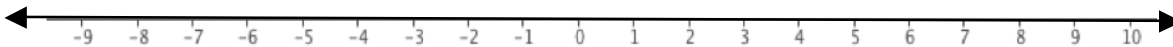
Step 2: Enter the following problem

- a) John ran more than 5 miles so enter $x > 5$ then hit return
- b) The result looks like the graph below:



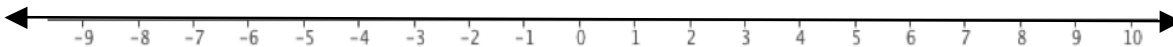
- c) Notice that there is an open circle since John ran *more than* 5 miles
- d) Enter $x \geq 5$ then hit return. How is the graph different?

Draw the new graph below:



* **Note:** If you hold down the option key and the $>$ symbol, you will get the \geq symbol, if you hold down option and $<$ you get the \leq sign.

- e) Type in $x \leq 6$ then graph the result below.

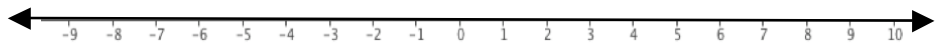
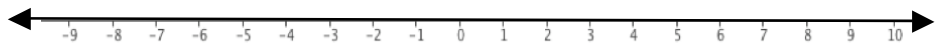
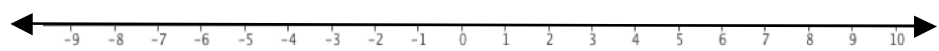
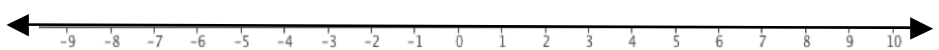


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Part II.

Look at the statement and expressions provided. Predict the graph. Draw the graph of your prediction on the number line provided. Check your answer by entering the expression in the entry box in the applet and hitting return. Compare the result to your prediction.

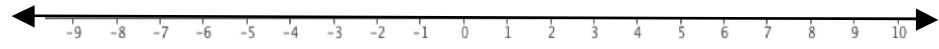
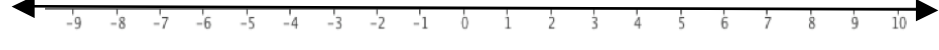

Statement	Inequality	Graph
1) The flower is more than 3 inches high.	$x > 3$	
2) The temperature was -2 or below every day in January.	$x \leq -2$	
3) There are less than 7 minutes left in class.	$x < 7$	
4) The lowest temperature in February was -3 degrees.	$x \geq -3$	

Questions about examples 1-4:

- a) When is the point on the graph solid?
- b) When is the point on the graph open?

Part III.

Predict the graph of the following. Check the graph in the applet. Record the new inequality shown in the applet above the graph in column 2 of the table below.

Inequality	Rewritten Inequality	Graph
5) $-4 > x$		
6) $8 \leq x$		
7) $2 \geq x$		

What happens to an expression whenever a positive x starts on the right side of the expression?

Note – Always read the inequality from the variable. Example: if $2 > x$ then $x < 2$. If you switch the variable to the other side, you must change the direction of the sign.

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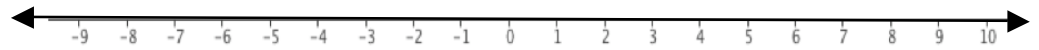
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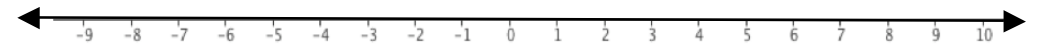
Part IV.

Make up some of your own examples, predict the result, and test them

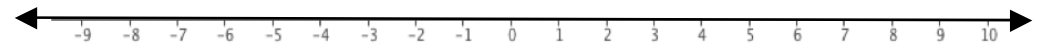
1. _____



2. _____



3. _____



4. _____

