

TOPIC:

<p>Sign $<$</p> <p>is Less Than</p> <ul style="list-style-type: none"> • under • below • fewer 	<p>Sign \leq</p> <p>is Less Than or Equal to</p> <ul style="list-style-type: none"> • at most • maximum • only • budget 	<p>Sign $>$</p> <p>is Greater Than</p> <ul style="list-style-type: none"> • exceeds • over • above • more than 	<p>Sign \geq</p> <p>is Greater Than or Equal to</p> <ul style="list-style-type: none"> • at least • minimum
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Inequality - a statement that does not have an equal sign

GRAPHING ON A NUMBER LINE

**** WRITE WITH VARIABLE ON THE LEFT SIDE ****

*** SHADE THE DIRECTION THE SYMBOL POINTS ***

LESS THAN

- open circle
- shade left

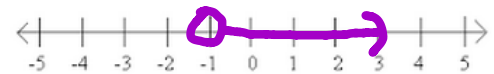
$$x < 2$$



GREATER THAN

- open circle
- shade right

$$x > -1$$

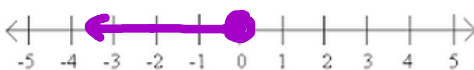


LESS THAN OR EQUAL TO

- closed circle
- shade left

$$0 \geq x$$

$$x \leq 0 \quad -4 < 0 \text{ TRUE}$$

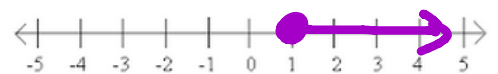


GREATER THAN OR EQUAL TO

- closed circle
- shade right

$$1 \leq x$$

$$x \geq 1$$



Writing Inequalities from a Graph

1.



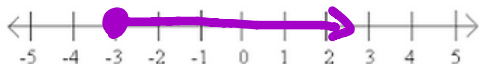
$$x > 0$$

2.



$$x \leq 2$$

3.



$$x \geq -3$$

4.



$$x \leq 1$$

Solving One Step Inequalities

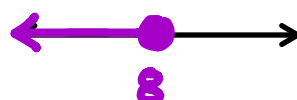
You solve inequalities the same way you solve equations. **But there is an exception!**

One Step Examples:

$$\begin{array}{r} x + 5 > -2 \\ -5 \quad -5 \\ \hline x > -7 \end{array}$$



$$\begin{array}{r} -3 + y \leq 5 \\ +3 \quad +3 \\ \hline y \leq 8 \end{array}$$



Here's the exception!

When you mult. or Division on both sides of the inequality by a NEGATIVE number, you must FLIP the inequality symbol!

1.

$$\begin{array}{r} -3x < 27 \\ \div -3 \quad \div -3 \\ \hline x > -9 \end{array}$$



2. $-7y \geq 35$

$$\begin{array}{r} -7y \geq 35 \\ \div -7 \quad \div -7 \\ \hline y \leq -5 \end{array}$$



$$\begin{array}{r} (-2)n > 8 \\ \div (-2) \quad \div (-2) \\ \hline n < -4 \end{array}$$

