

**Algebra I**  
**Lesson 3.1 – Graphing and Writing Inequalities**  
**Mrs. Snow, Instructor**

The school speed zone on McNeil is 35 mph. That means a speed greater than 35 mph is illegal. Speeding between 1 and 5 mph over the limit will cost \$204!! A speed limit is an inequality; less than the limit you are OK greater than the limit, better have \$204!

**Vocabulary:**

**Inequality** – a statement that two quantities are not equal. The quantities are compared by using inequality signs

**Solution to an inequality** – any value that makes the inequality true

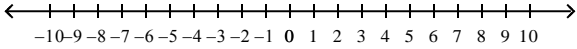
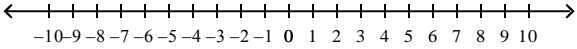
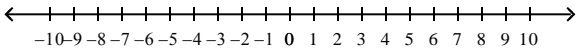
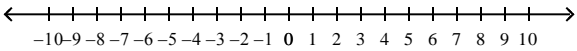
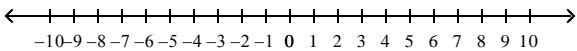
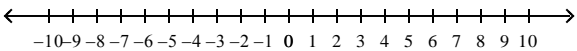
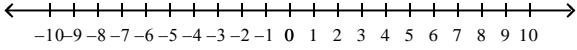
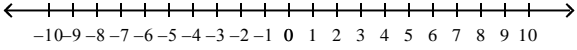
$<$	$A < B$	$A$ is less than $B$ ; $A$ is smaller than $B$
$\leq$	$A \leq B$	$A$ is less than OR will be equal to $B$ ; $A$ is smaller than OR equal to $B$
$>$	$A > B$	$A$ is greater than $B$ ; $A$ is bigger than $B$
$\geq$	$A \geq B$	$A$ is greater than OR will be equal to $B$ ; $A$ is bigger than OR equal to $B$
$\neq$	$A \neq B$	$A$ is not equal to $B$
<i>Think of the symbol being the tip of an arrow pointing to the smaller object.</i>		

When we put a variable in an inequality we can solve for the variable in much the same way as if the symbol were an equal sign. There will be a new rule for when we clear out a coefficient.

When graphing a solution set to an inequality on a number line, the end point is a:

- circle ○ this means that the number value is not a solution; used for  $<$  or  $>$  problems.
- dot ● this means that the number value is a solution; used for  $\leq$  or  $\geq$  problems.

**Solve for the variable and show the solution set on a line graph:**

$x < 5$ 	$g \geq -4$ 
$h \leq 3$ 	$y > -2$ 
$4 - x \geq 12$ 	$3 + x < 9$ 
$h + 5 > 11$ 	$j - 8 \leq 2$ 

**Simplify:**

$$4 - (-7)$$

$$-8 + 5$$

$$y + 9y$$

$$x + (x + 2) + (x + 5)$$

$$h + 2(2h - 5) + 4(h + 6)$$

There are 3 times as many 7<sup>th</sup> graders at the science fair as there are 8<sup>th</sup> graders. Write a rule (equation) for the number 7<sup>th</sup> graders at the science fair. If there are 9 8<sup>th</sup> graders, how many 7<sup>th</sup> graders are there?

A book club charges a \$14 membership plus \$2 for each paperback book purchased. Write a rule (equation) for the cost of buying  $x$  books. What is the cost if we buy 8 books?

Name a value of  $x$  that makes the statement true:  
 $0.25 < x < 1.36$ . How many solutions are there?