4.1: Writing and Graphing Inequalities

How can you use a number line to represent solutions of an inequality? How are equations different from inequalities?

Plot and label each number on the same number line.

 1.  2. 

 3.  4. 

 5.  6. 

Solution of an inequality: a value that makes an inequality true

Solution set: the set of all solutions of an inequality

*Consider:* x + 2 $\leq $ -1

If the value of x is -2 (true or false):

If x is -3:

If x is -4

Write a sentence involving a real-life situation that can be modeled using an inequality.

< : is less than; is fewer than

>: is greater than; is more than

$\leq $: is less than or equal to; is at most; is no more than

$\geq $: is greater than or equal to; is at least; is no less than

The graph of an inequality shows all the solutions of the inequality on a number line.

*Open Circle:*

*Closed Circle:*

Write an inequality for the graph. Then, in words, describe all the values of *x* that make the inequality true.

 1. 

 2. 

 3. 

 4. 

Write the word sentence as an inequality.

 1. A number *x* is at most 3.

 2. A number *y* added to 2 is greater than 7.

 3. A number *c* multiplied by 3 is less than –12.

 4. A number *m* minus 1.5 is no less than 2.

Tell whether the given value is a solution of the inequality.

 5.  6. 

 7.  8. 

Graph the inequality on a number line.

 9.  10. 

 11. In order to try out for one of the parts in a play at the local theater, you must be at most 12 years old. Write an inequality that represents this situation.

**TRY Pg. 105 in WB**