3.1-> Inequalities and Their Graphs

Graph	Inequality Symbol	Meaning	Key Words and Phrases
	$<$	Less Than	
	$\leq$	Less Than or Equal To	No More Than; At Most
	$>$	Greater Than	More
	$\geq$	Greater Than or Equal To	At Least

What is an inequality? a mathematical sentence that compares the values of two expressions using an inequality symbol ($> \geq = <$).

Solution of an inequality: a number that produces a true statement when it is substituted for the variable in the inequality.

1. Is each number a solution of $x > -4.1$?

a. -5 $-5 > -4.1$ NO

b. -4.1 $-4.1 > -4.1$ NO

c. 8 $8 > -4.1$ Yes

d. 0 $0 > -4.1$ Yes

*You can determine whether a value is a solution of an inequality by evaluating an expression.

2. Is each number a solution of $6x - 3 > 10$?

a. 1
$6(1) - 3 > 10$
$6 - 3 > 10$
$3 > 10$
NO

b. 2
$6(2) - 3 > 10$
$12 - 3 > 10$
$9 > 10$
No

c. 3
$6(3) - 3 > 10$
$18 - 3 > 10$
$15 > 10$
Yes

3.1 Notes (continued)

*Since the Solution of an inequality is not just one number, you can use a graph to indicate all solutions.

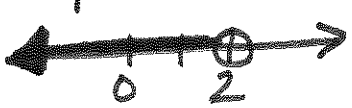
3. Graph each inequality:

a. $a < 1$

b. $n \geq -3$

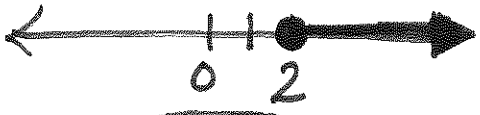
c. $2 > p$

$p < 2$



4. Write an inequality for each graph:

a.



$x \geq 2$

b.

$x < 0$

5. Define a variable and write an inequality for each situation:

a. A speed (s) that violates (over) the law when the speed limit is 55 mph.

$s > 55$

b. A job that pays (p) at least ($\geq$) $500 a month.

$p \geq 500$

c. The auditorium can hold at most ($\leq$) 2500 people (p).

$p \leq 2500$