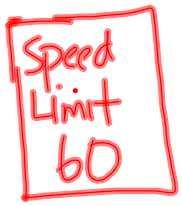
Section 6.3 - Introduction to Linear Inequalities

less than	$<$	below, under
less than or equal to	$\leq$	up to, at most, no more than maximum
greater than	$>$	over, more than
greater than or equal to	$\geq$	at least, minimum

A Writing an inequality to describe a situation

Example 1: Define a variable and write an inequality to describe the situation.

a) 

$s \leq 60$

b) you must be at least 16 years old to get a driver's licence.

$s \geq 16$

Example 2: pg 289.

* Linear Inequalities $\Rightarrow$ a linear inequality may be true for many values of the variable

* whereas, a linear equation is true for only one value of the variable

(B) Determining whether a number is a solution of an inequality

Example (1): Is each number a solution of the inequality $x \leq 3$?

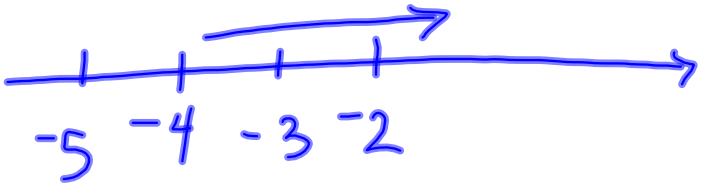
a) 5 no

b) 3 yes

c) 0 yes

d) -2 yes

Example (2): $b \geq -4$



a) -8 no

b) -3.5 yes

c) -4 yes

d) -4.5 no

e) 0 yes

Graphing Inequalities on a # line

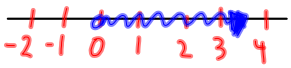
* The solutions of an inequality can be graphed on a number line.

* for example,

$a > 0$

→ a is greater than 0, so 0 is not included in the solution.

→ this is shown by an open circle at 0.



ex: $a \leq 0$

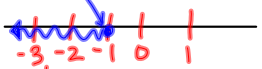
→ a is less than or equal to 0, so 0 is included in the solution.

→ This shown by a shaded circle at 0.

Example: graph each inequality:

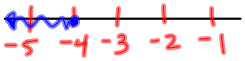
a) $b > 5$

b) $y \leq -1$



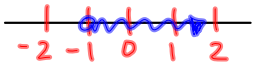
c) $-4 \geq n$

$n \leq -4$



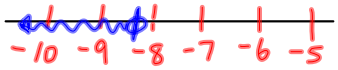
d) $-1 < r$

$r > -1$



e) $p < -\frac{25}{3}$

$p < -8\frac{1}{3}$



Complete: pg. 292-293

#s: 3-6, 8, 9, 10, 12, 13, 16