

### 3.7 – LINEAR INEQUALITIES:

**\*\*\* Inequalities should always be in slope intercept form \*\*\***

**Graph:  $y < 4x - 6$**

**1) Graph the line as if it was an equation  $y = 4x - 6$  This becomes the boundary line.**

**2) DECIDE**

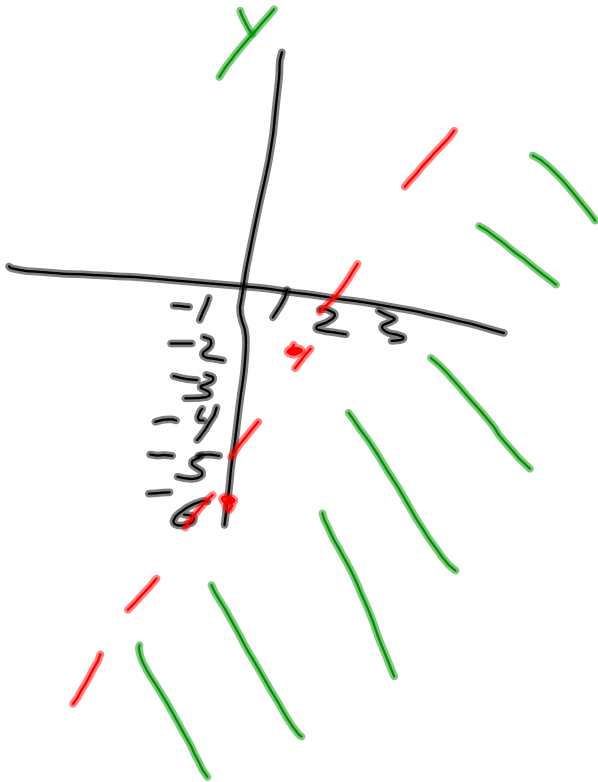
**$<$  or  $>$  Use a dashed line**

**$\leq$  or  $\geq$  Use a solid line**

**3)  $<$  or  $\leq$  Shade down (y decreases)**

**$>$  or  $\geq$  Shade up (y increases)**

$$y < 4x - 6$$



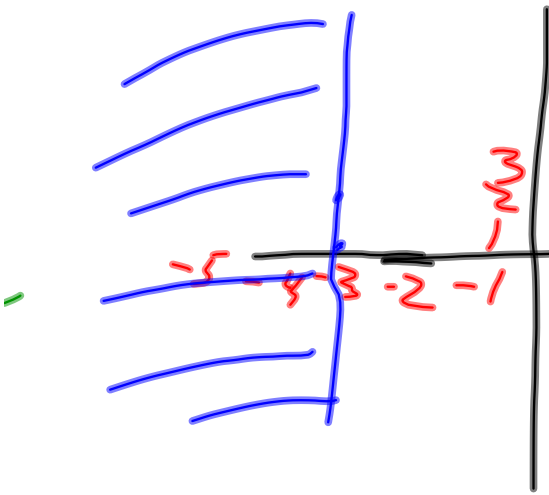
$$y = 4x - 6$$

x	y
0	-6
1	-2

$$x \leq -3$$

$$x = -3$$

$$(-3, 0)$$
$$(-3, 1)$$



**Check your graph by choosing any ordered pair within the shaded region and plugging it into the inequality.**

**Inequality in Standard Form:**

**Convert to slope intercept form.**



**\*\*\* There are times you cannot shade below zero. In real life, if you were graphing a car that travels less than 4 hours, time could not be negative.**

**Finding the inequality given a graph:**

**Find the equation of the boundary line and then add the correct inequality symbol.**

$$2x - 3y \geq 12$$

$$\frac{-3y}{-3} \geq \frac{-2x + 12}{-3}$$

$$y \leq \frac{2}{3}x - 4$$

$$y < \frac{2}{3}x - 4$$

$$y = \frac{2}{3}x - 4$$

x	y
0	-4
3	-2

