Name: Key

UNIT 3 | Date: _____ LESSON 5

DO NOW

a. Which value would be a solution for x in the inequality $47 - 4x < 7$?

$-47 \quad -47$

1) -13 2) -10 3) 10 4) 11

$\frac{-4x}{-4} < \frac{-40}{-4}$

$x > 10$

b. Is (-3, 2) a solution of $-4x - 10y < -9$? Justify your answer.

x y

$-4(-3) - 10(2) < -9$

$12 - 20 < -9$

$-8 < -9$

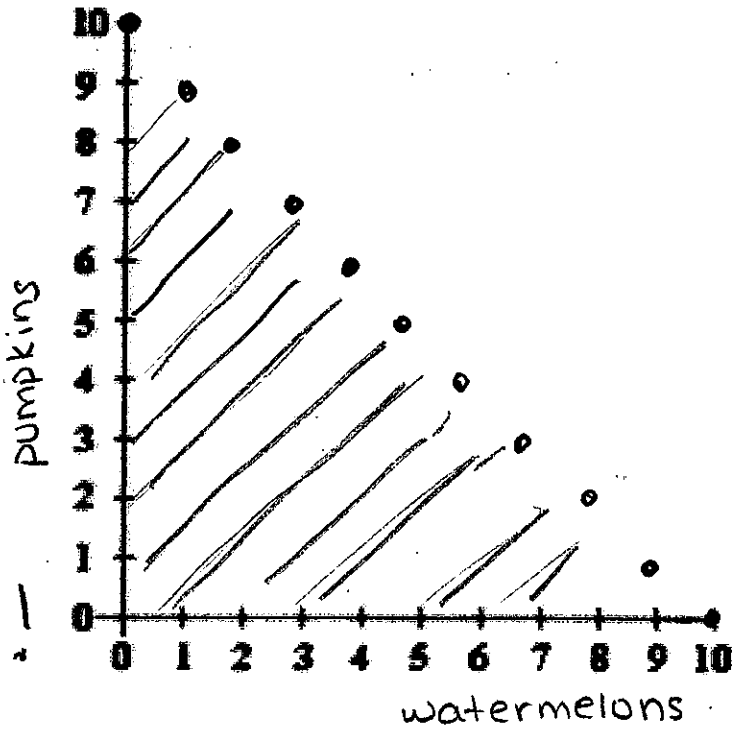
NO!

AIM: GRAPHING A LINEAR INEQUALITY

1. There is enough space in your garden to plant a maximum of ten plants. You want to plant watermelons & pumpkins. List the possible combinations of the number of watermelons and pumpkins you could plant. Graph the results of the possible combinations of plants.

0, 10
1, 9
2, 8
3 7
4, 6
5, 5
6 4
7, 3
8, 2
9, 1 10, 0

max
(1, 1)
(2, 5)
⋮
no decimals!



2. Graph the solution set for the inequality:

$4x - y < 10$

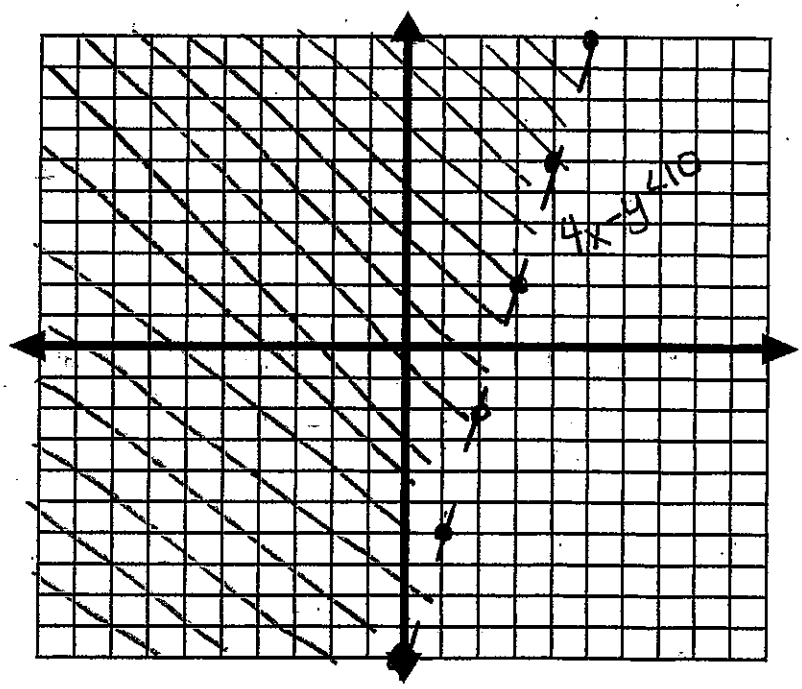
$-4x \quad -4x$

$\frac{-y}{-1} < \frac{-4x}{-1} + \frac{10}{-1}$

$y > 4x - 10$

$m = \frac{4}{1} \quad b = -10$

dashed, above

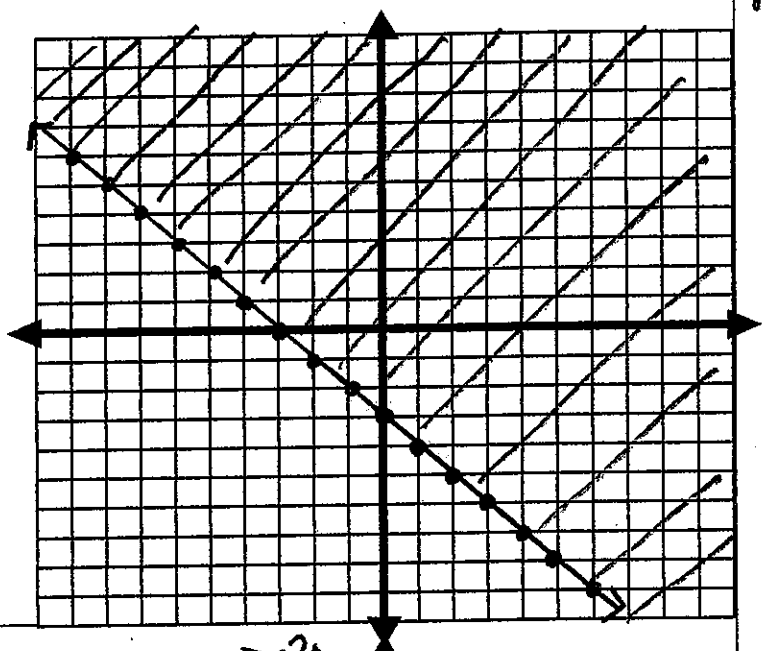


3. a. Graph the solution set for the inequality.

$y+3 \geq -x$
$-3 \quad -3$

$y \geq -x-3$

$m = \frac{-1}{1} \quad b = -3$



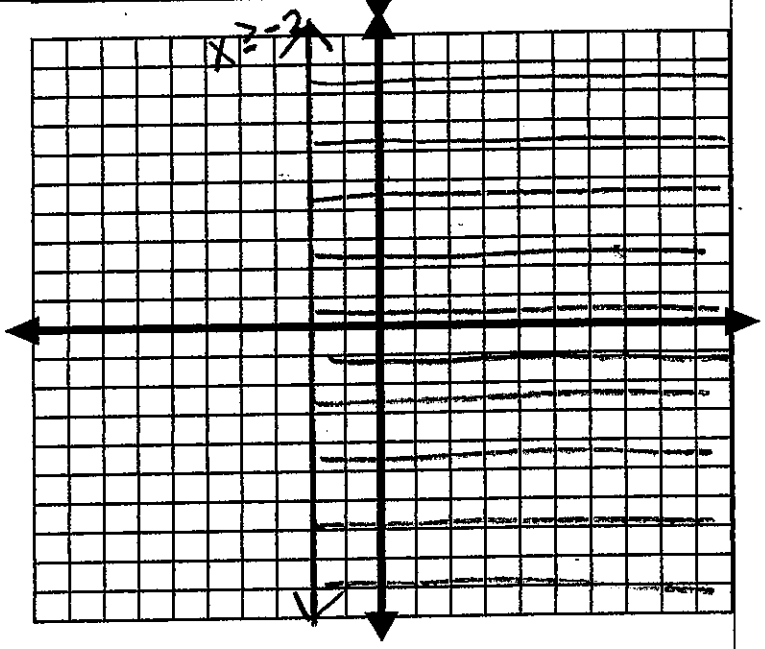
b. Is (0,-3) in the solution set? Justify your answer.

yes b/c the point is on a solid line.

4. a. Graph the solution set for the inequality.

$x \geq -2$

vertical



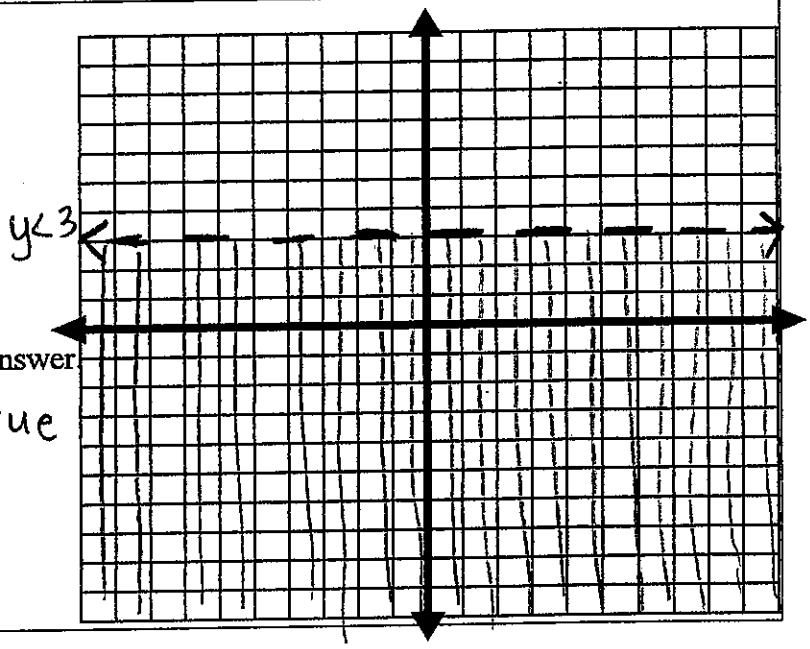
b. Determine a point NOT in the solution set. Explain your answer.

(-10,5) not in the shaded region

5. a. Graph the solution set for the inequality.

$y < 3$

horizontal



b. Is (0,100) in the solution set? Explain your answer.

NO 100 < 3 is not true

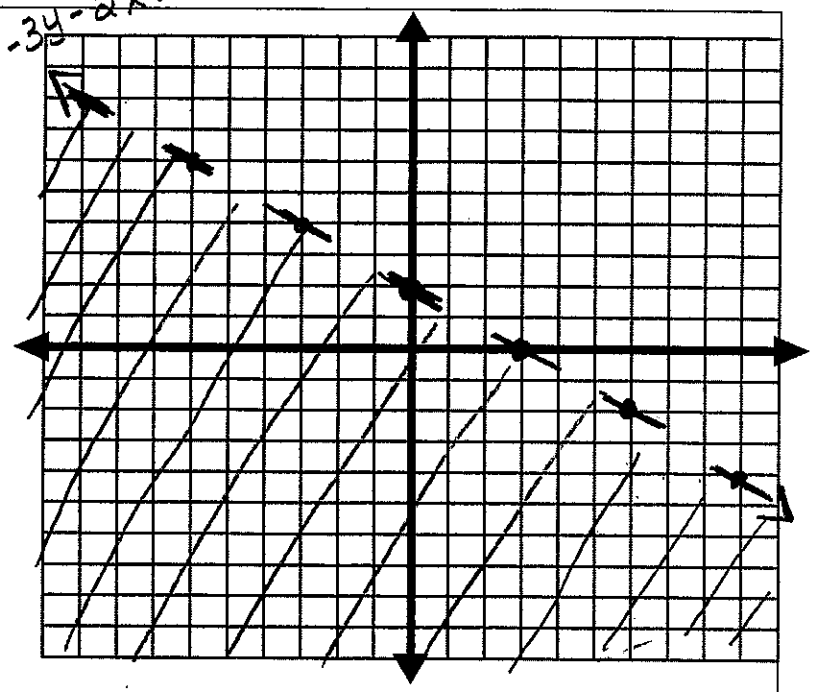
6. a. Graph the solution set for the inequality. $-3y-2x>-6$

$-3y-2x>-6$

$+2x \quad +2x$

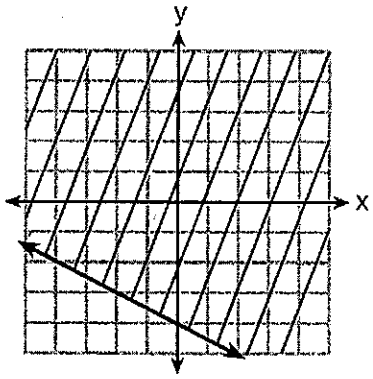
$\frac{-3y}{-3} > \frac{2x}{-3} - \frac{6}{-3}$

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



b. Determine a point in the solution set.

7. Shawn incorrectly graphed the inequality $-x-2y \geq 8$ as shown below.



$-x-2y \geq 8$

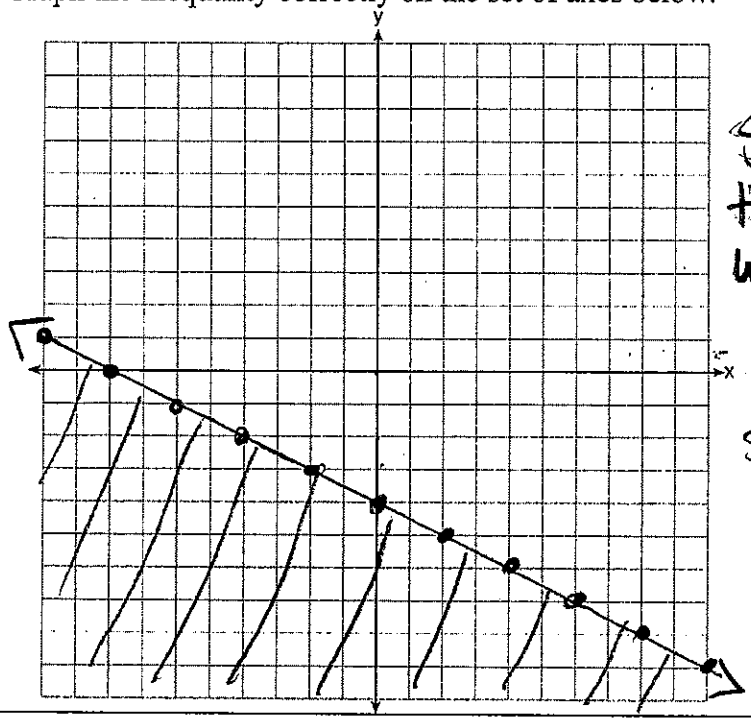
$+x \quad +x$

$\frac{-2y}{-2} \geq \frac{x+8}{-2}$

$y \leq -\frac{1}{2}x - 4$

Explain Shawn's mistake. Graph the inequality correctly on the set of axes below.

$-x-2y \geq 8$



Shawn forgot to flip inequality when dividing by negative so he shaded wrong way!

When you graph a linear inequality you determine the type of line and the shading by the chart below:

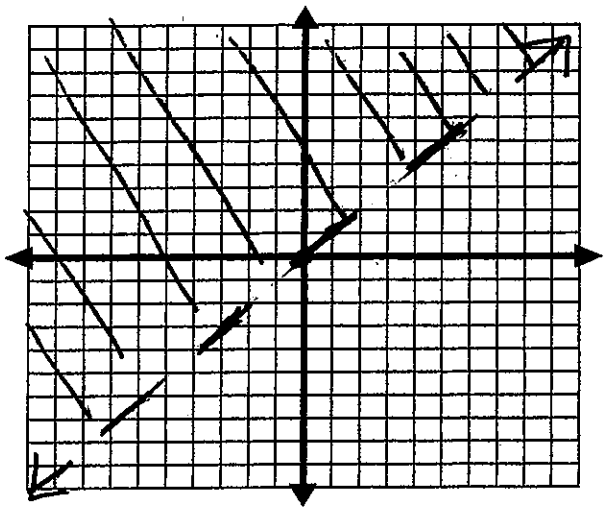
Inequality Symbol	Type of Line	Meaning	Shading a Diagonal or Horizontal Line	Shading a Vertical Line
$\leq$	Solid Line	The points on the line satisfy the inequality	Below	Left
$\geq$	Solid Line	The points on the line satisfy the inequality	Above	Right
$<$	Dashed Line	The points on the line does NOT satisfy the inequality	Below	Left
$>$	Dashed Line	The points on the line does NOT satisfy the inequality	Above	Right

Name:_____ EXIT TICKET

1) Graph and state a solution set for:

$y > x$

$m = 1 \quad b = 0$



(-5, 10)

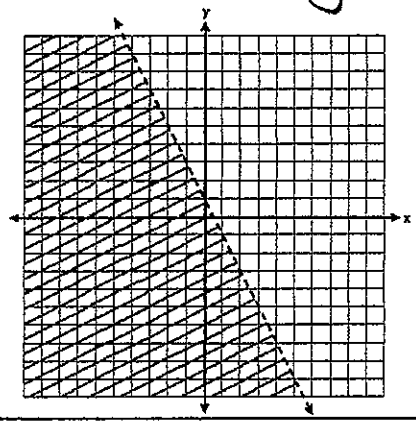
2) Given the graph below:

(a) Identify one solution and explain why it's a solution. (-5, 2)

in shaded region

(b) Identify one point that it is NOT a solution and explain why it's NOT a solution.

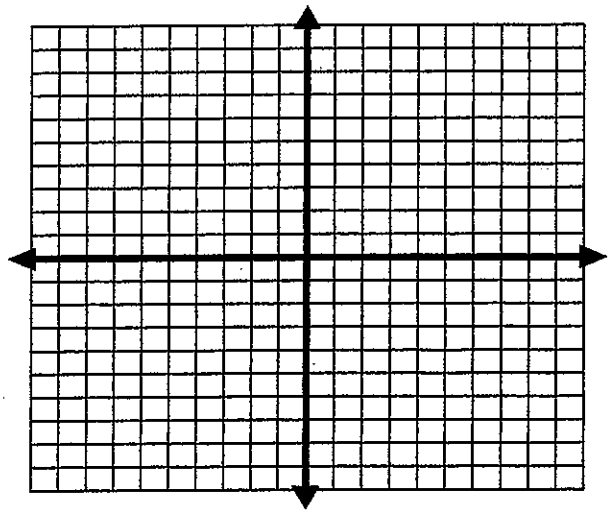
(5, 2) NOT in shaded region



Name:_____ EXIT TICKET

1) Graph and state a solution set for:

$y > x$



2) Given the graph below:

(a) Identify one solution and explain why it's a solution.

(b) Identify one point that it is NOT a solution and explain why it's NOT a solution.