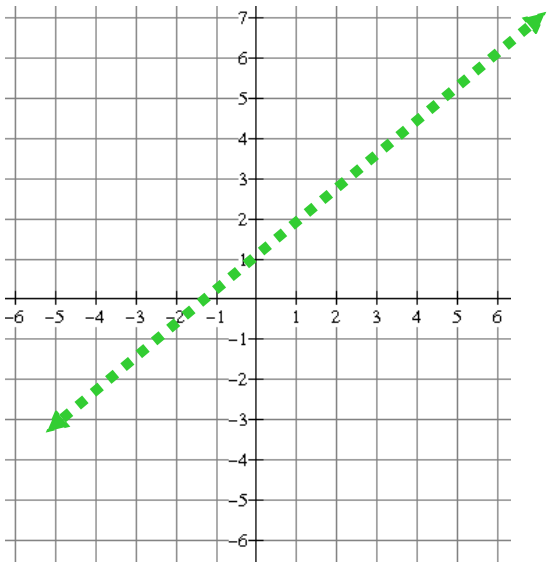
Feb. 3, 2020

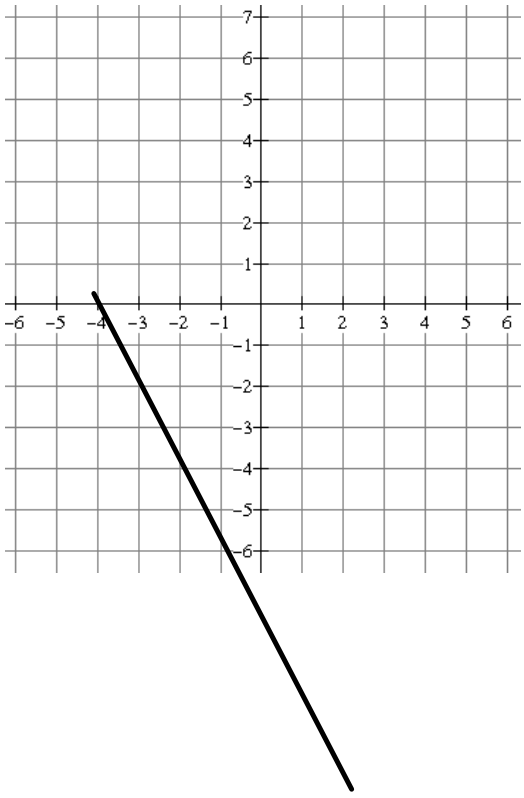
Warm-up

Now You Try:

$y > x + 1$



$2x + y \geq -8$



Systems of Inequalities Feb. 3, 2020

What happens if we have TWO inequalities to deal with?

$y = mx + b$

$(0,0)$ $0 \leq 0+1$?

Example 1: Graph the following inequalities and determine the feasible region.

$y \leq x + 1$ AND $y > -2x + 4$

$m = \frac{1}{1}$ $y\text{int} = 1$

$m = -\frac{2}{1}$ $y\text{int}$

$2 > -2(1)+4$?

$2 > 2$?

$(1,2)$

Step 1: Graph the first equation.

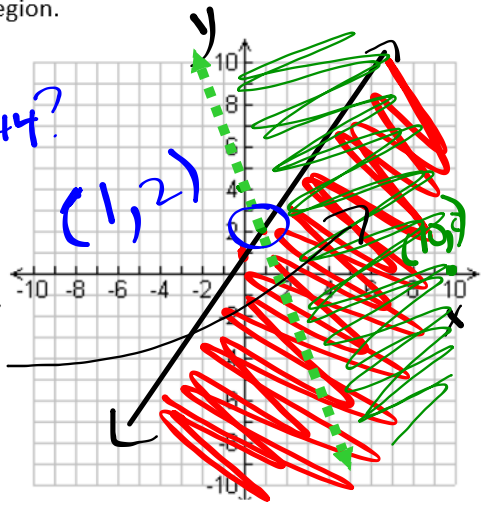
Step 2: Graph the second equation ON THE SAME PLANE.

Step 3: State the feasible region (where the shading overlaps).

$0 > -2(0)+4$?

$0 > -16$?

Feasible region



Example 2: Graph the following inequalities and determine the feasible region.

$x + y < 4$

$-3x + y \geq 9$

$y \geq 3x + 9$

x int: $-3x = 9$

$x = -3$

y int: $y = 9$

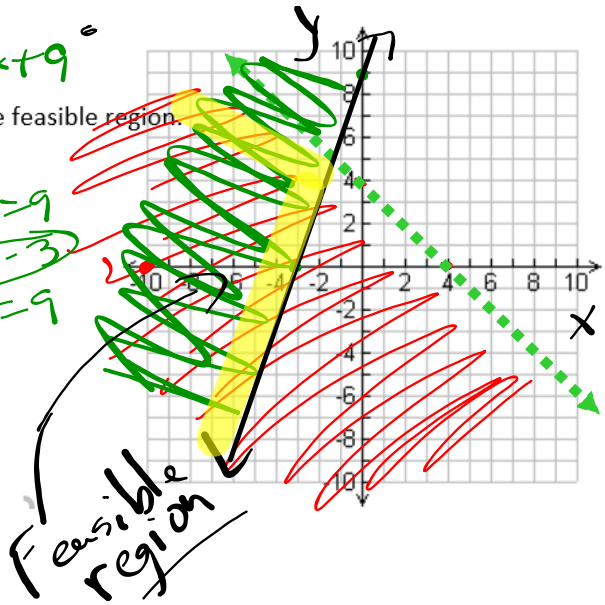
(0,0)

$0 + 0 < 4$?

(-10,0)

$-3(-10) + 0 \geq 9$?

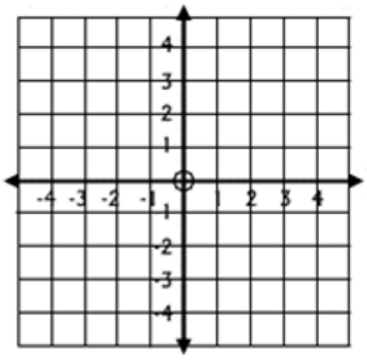
$30 \geq 9$?



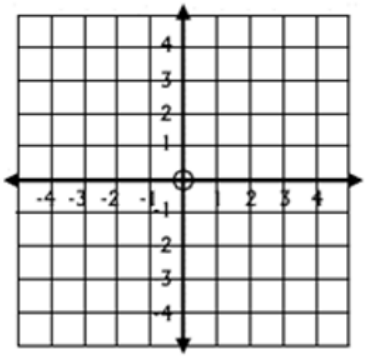
PRACTICE # 1 (a-f), attempt (ghi)

1. Graph each system of inequalities.

a. $y < 2x + 3$
$y \geq \frac{1}{2}x - 1$



b. $y < \frac{1}{2}x + 2$
$y > 3x - 2$



c. $x \geq 2$
$y > 1$