

Standard form
 $ax + by = c$

$$3x + 2y = 18$$

x	y
0	9
6	0

← +6 → -9

y-intercept?

x-intercept?

Slope? $\frac{\Delta y}{\Delta x} = \frac{-9}{6}$

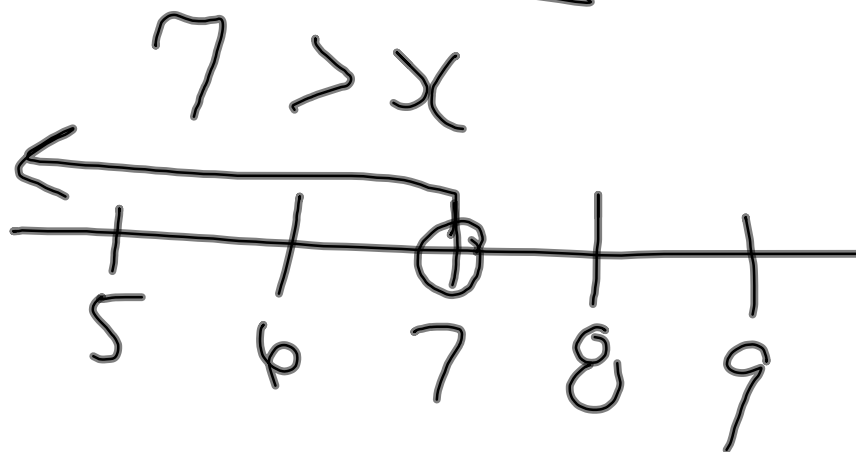
$$= -\frac{3}{2}$$

If inequality is $>$ or $<$
then use O or $\varepsilon \dots \delta$

If inequality is \geq or \leq
then use \odot or \longleftrightarrow

$$\begin{array}{rcl} x + 3 & > & 2x - 4 \\ +4 & & +4 \\ \hline x + 7 & > & 2x \\ -x & & -x \\ \hline \end{array}$$

one variable inequality graphed on
a number line



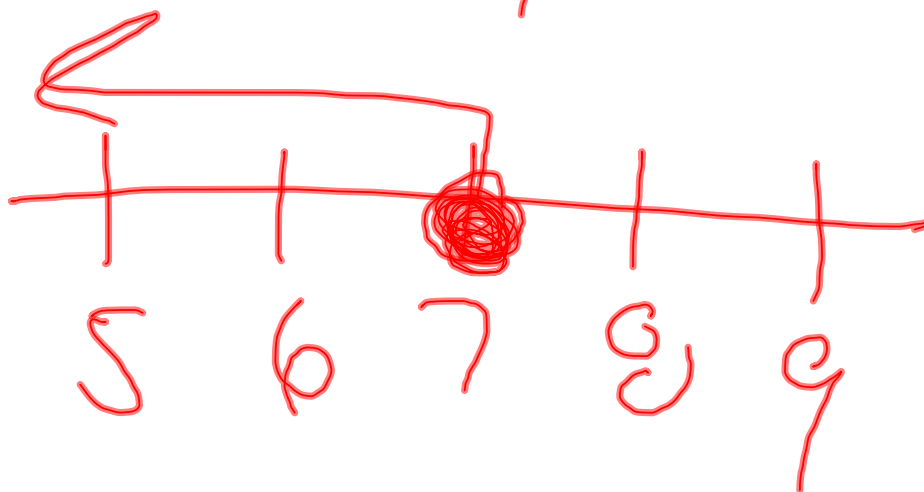
one variable inequality graphed on a number line

$$\begin{array}{r} x+3 \geq 2x-4 \\ -3 \qquad -3 \end{array}$$

$$\begin{array}{r} x \geq 2x-7 \\ -2x \quad -2x \end{array}$$

$$\begin{array}{r} -x \geq -7 \\ -1 \quad -1 \end{array}$$

$$x \leq 7$$



two variable inequality graphed on coordinate plane

$$x - 2y \geq 4$$

1st graph

$$x - 2y = 4$$

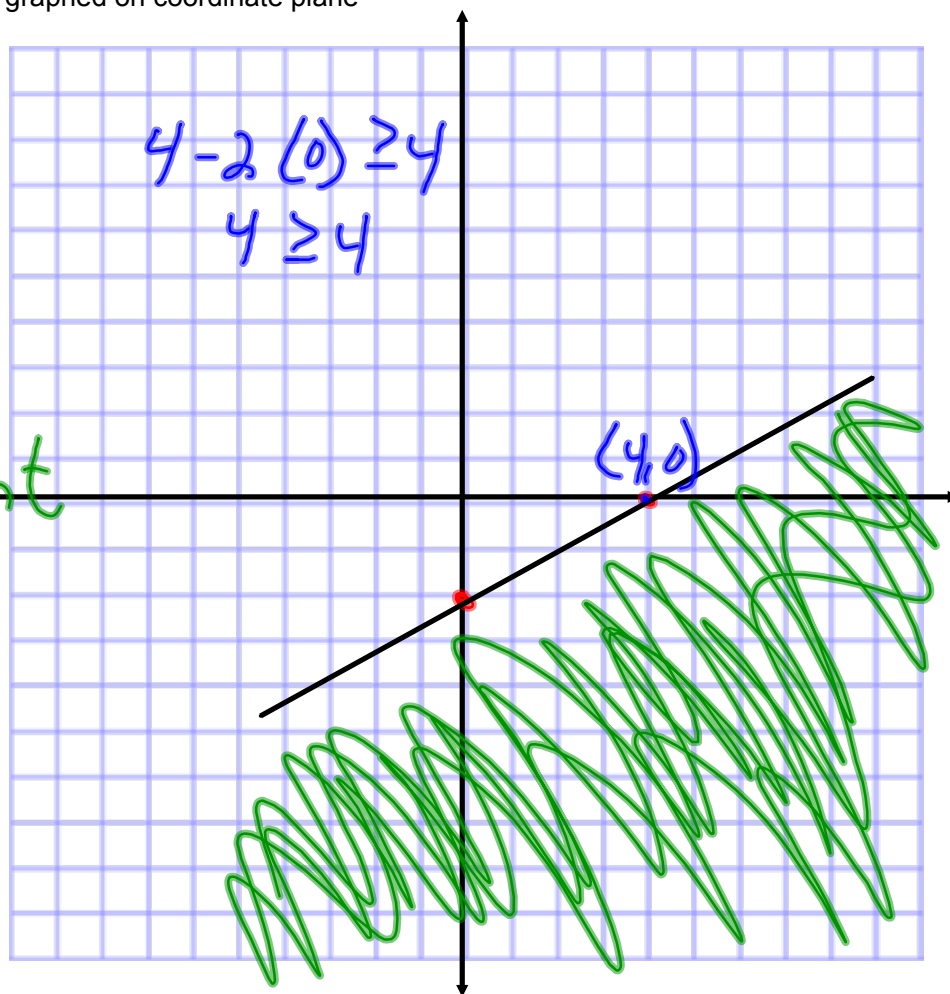
x	0	4
y	-2	0

2nd test point

$$(0,0)$$

$$0 - 2(0) \geq 4$$

$$0 \geq 4$$



two variable inequality graphed on coordinate plane

$$6x - 2y < 12$$

1st graph

$$6x - 2y = 12$$

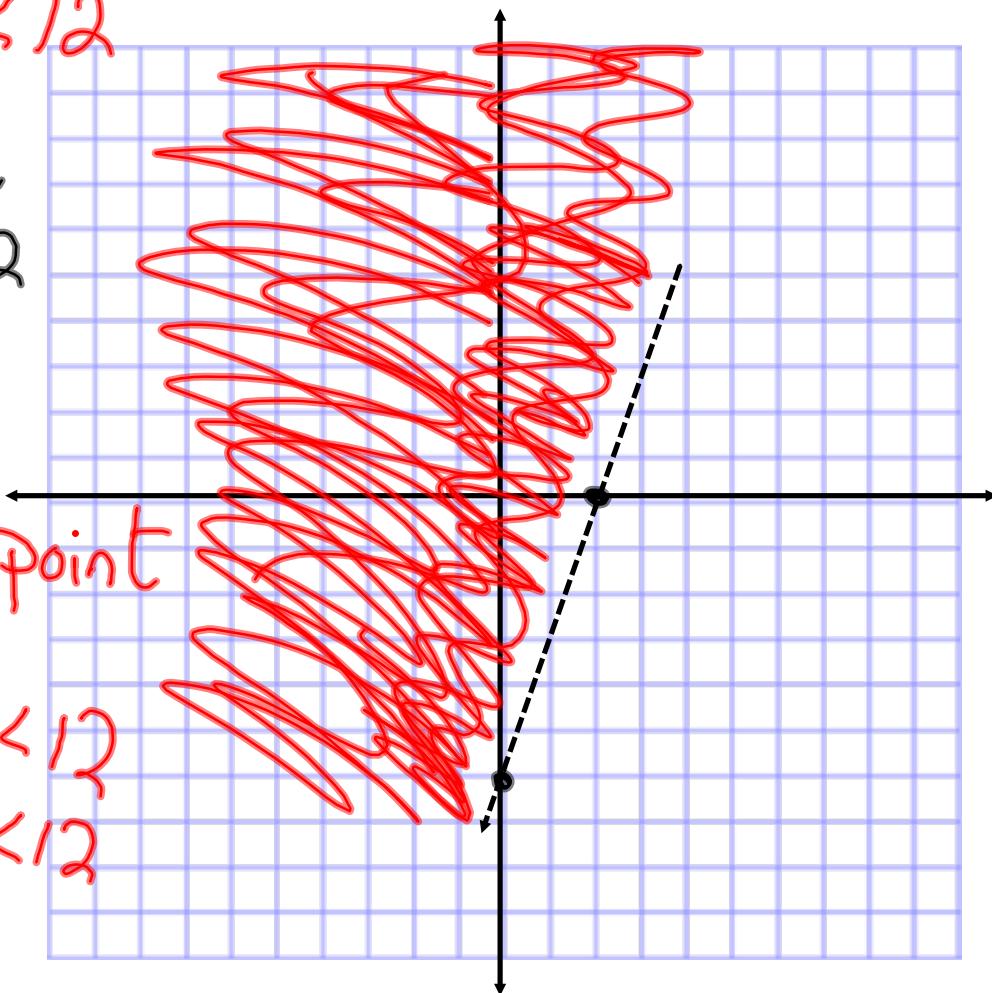
x	0	2
y	-6	0

and test point

$$(0,0)$$

$$6(0) - 2(0) < 12$$

$$0 < 12$$



two variable inequality graphed on coordinate plane

$$y - 2x > 4$$

1st graph

$$y - 2x = 4$$

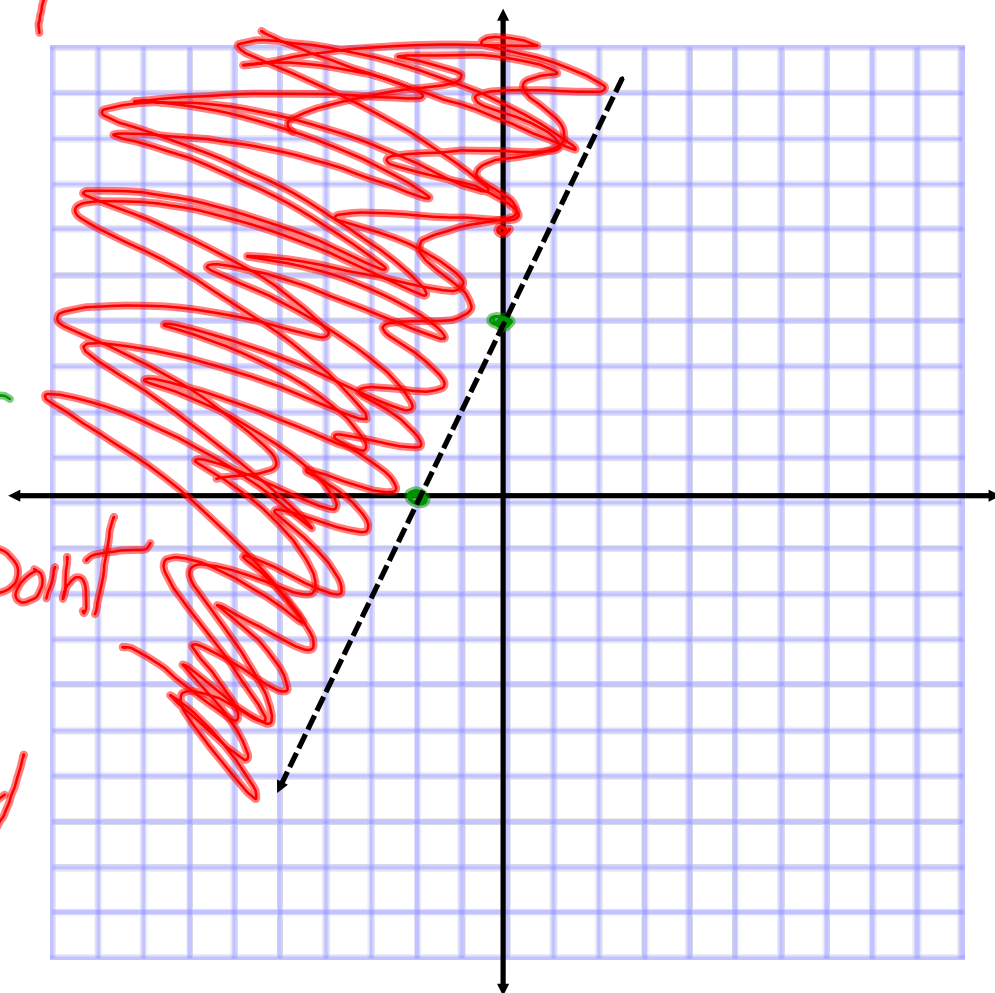
x	0	-2
y	4	0

and test point

$$(0,0)$$

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

$$0 > 4$$



two variable inequality graphed on coordinate plane

$$y + 4x \geq -8$$

1st graph

$$y + 4x = -8$$

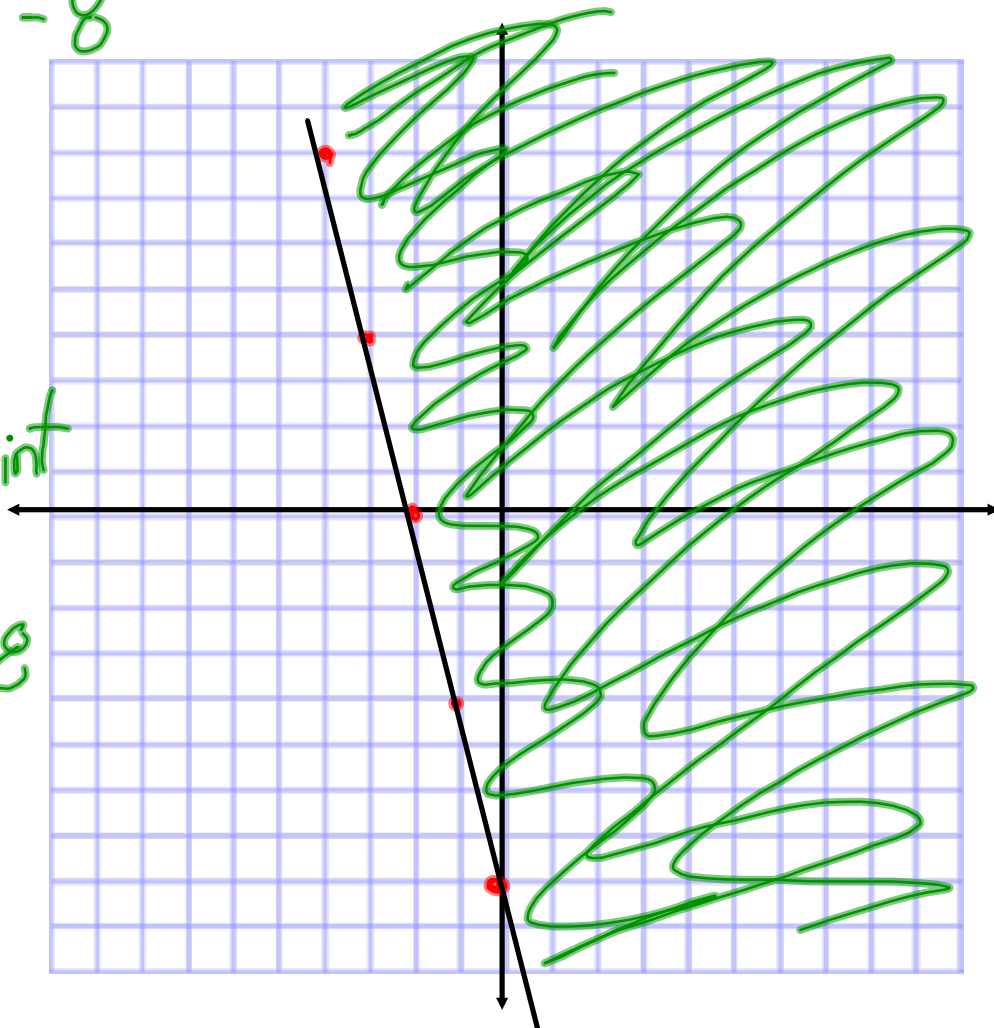
$$\Rightarrow y = -4x - 8$$

and test point

 $(0,0)$

$$(0) + 4(0) \geq -8$$

$$0 \geq -8$$



two variable system of linear inequalities

$$\begin{cases} x - 3y \geq 3 \\ x - 3y \leq 12 \end{cases}$$

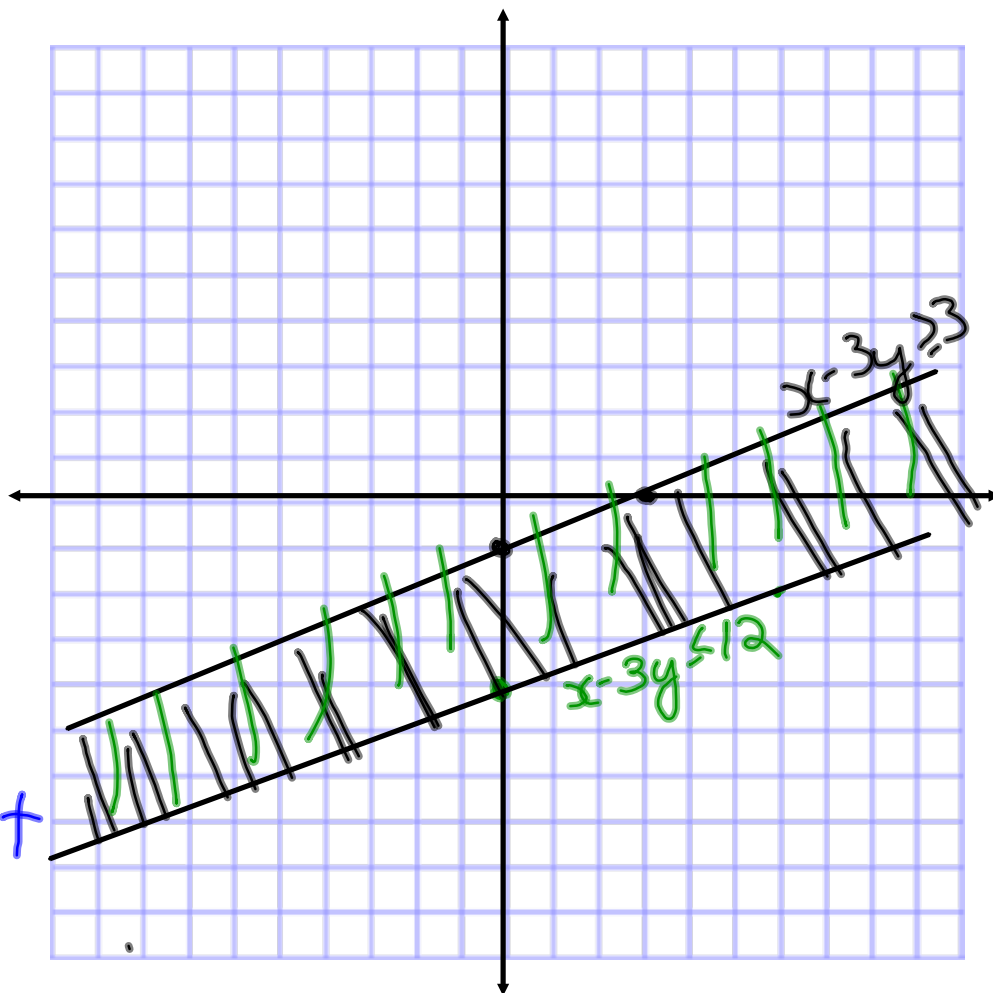
1st graph

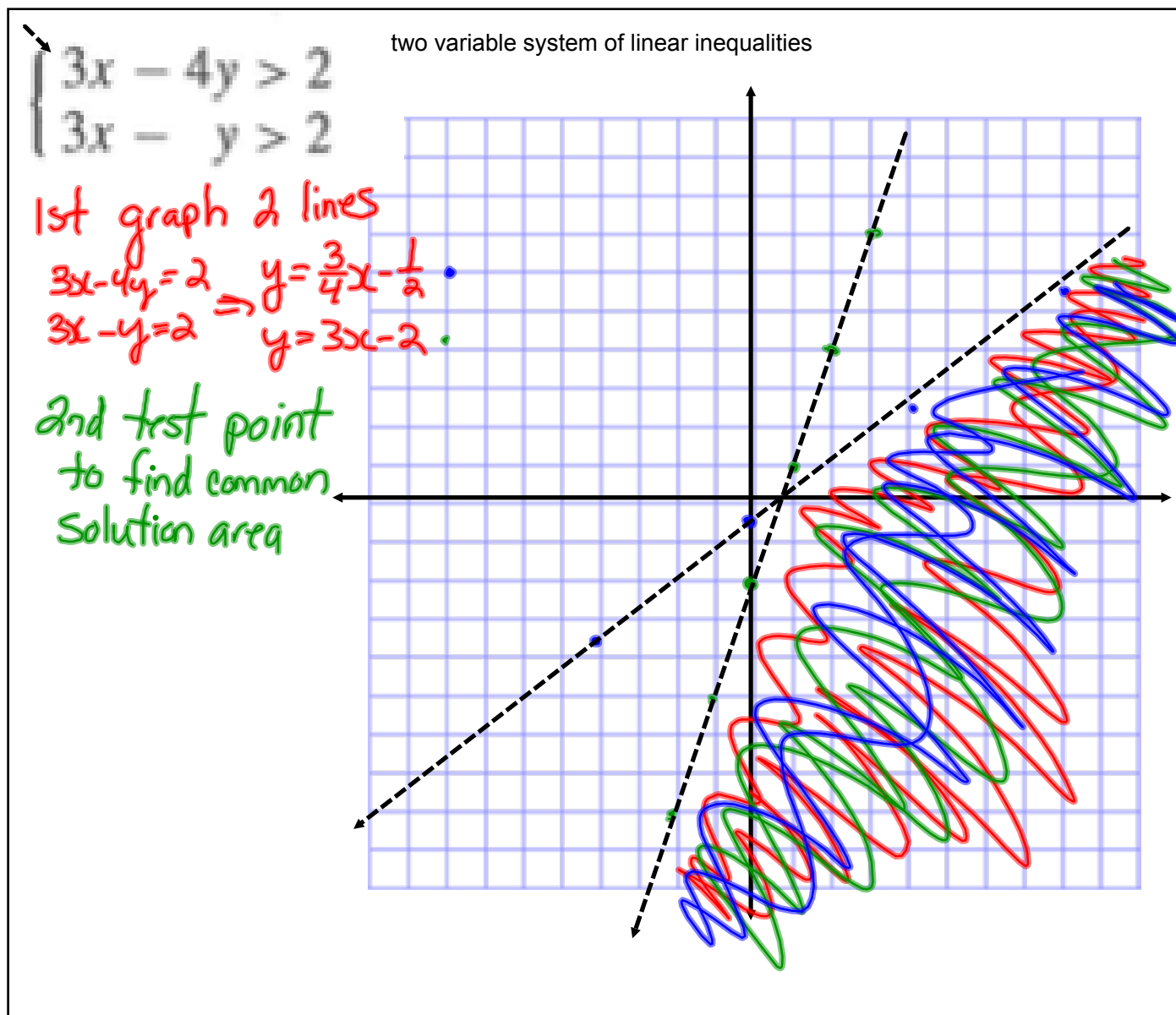
$$x - 3y = 3$$

$$x - 3y = 12$$

$$\begin{array}{c|c|c} x & 0 & 3 \\ \hline y & -1 & 0 \end{array}$$

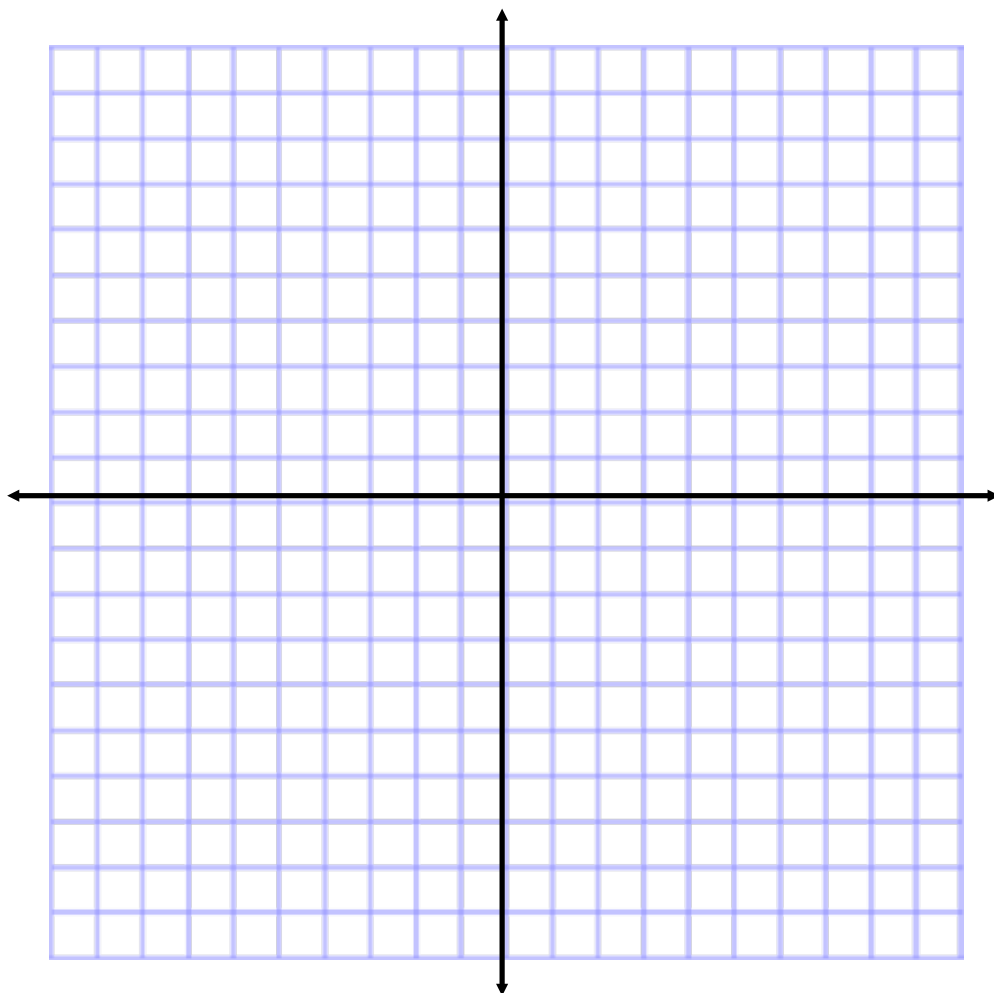
$$\begin{array}{c|c|c|c} x & 0 & 12 & 6 \\ \hline y & -4 & 0 & -2 \end{array}$$

2nd test point
(0,0)



$$\begin{cases} 2x + 3y < 4 \\ 2x + 3y > -9 \end{cases}$$

two variable system of linear inequalities



$$\begin{cases} x + y \geq 4 \\ -3x + y < 1 \end{cases}$$

two variable system of linear inequalities

