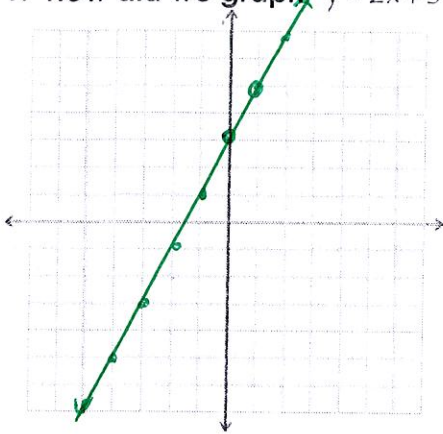


Warm- Up: Solve and graph the following compound inequalities.
CHANGE THIS

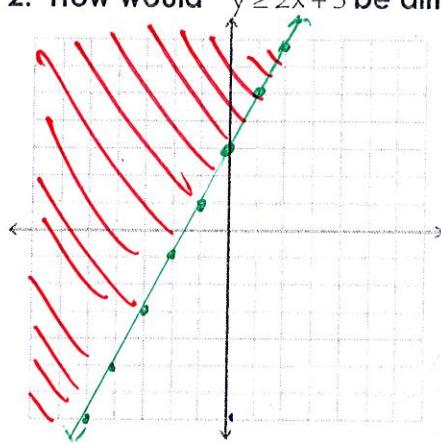


Graphing Linear Inequalities

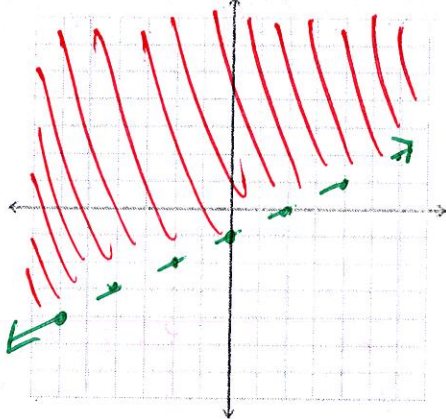
1. How did we graph $y = 2x + 3$?



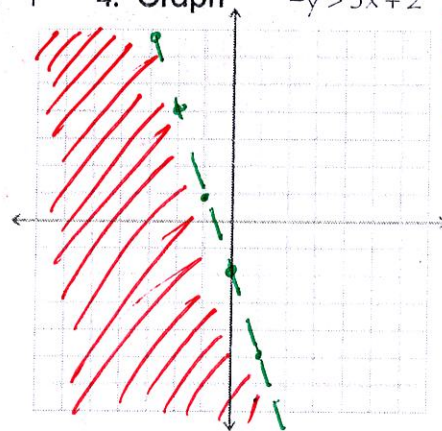
2. How would $y \geq 2x + 3$ be different?



3. How would this symbol change the graph? $y > \frac{1}{2}x - 1$

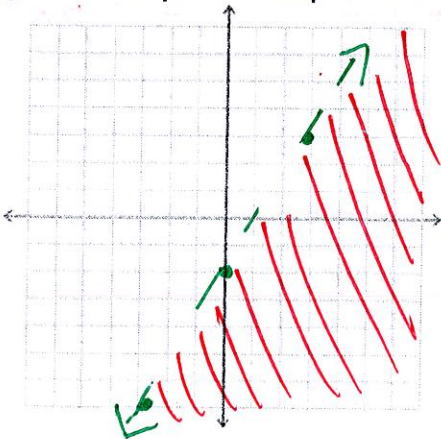


4. Graph $-y > 3x + 2$



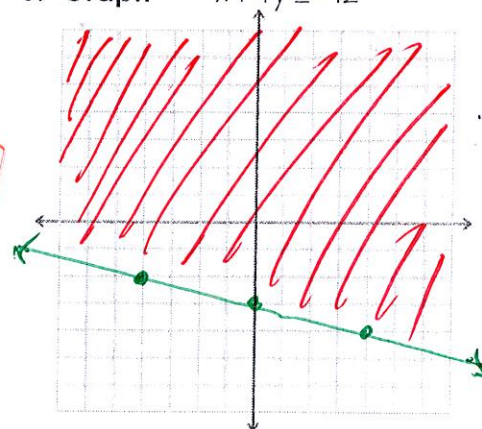
$y < -3x - 2$

5. How would you put the inequality given in slope-intercept form?



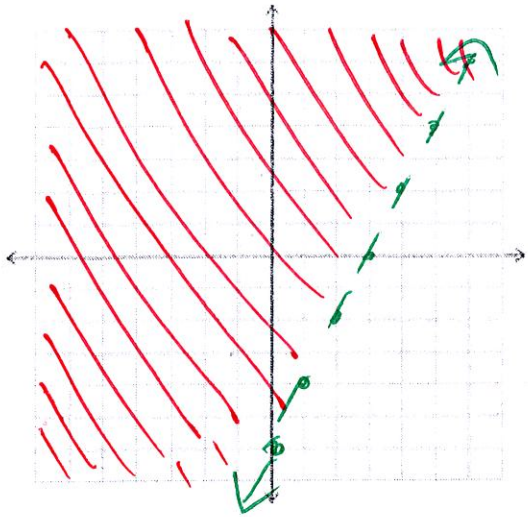
$$\begin{aligned} 5x - 3y &> 6 \\ -5x & \quad -5x \\ -3y &> -5x + 6 \\ y &< \frac{5x}{3} - 2 \end{aligned}$$

6. Graph $x + 4y \geq -12$



$$\begin{aligned} x + 4y &\geq -12 \\ -x & \quad -x \\ 4y &\geq -x - 12 \\ y &\geq -\frac{1}{4}x - 3 \end{aligned}$$

7. Graph the inequality $-2y + 4x < 12$.



Arrange the inequality in slope-intercept form ($y=mx+b$).

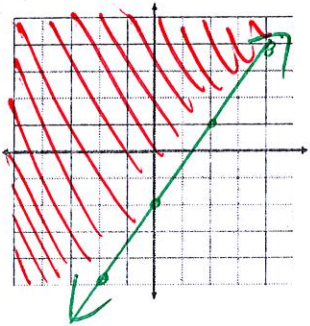
$$\begin{aligned} -2y + 4x &< 12 \\ -4x &\quad -4x \\ -2y &< -4x + 12 \end{aligned}$$

Graph the line.

- Solid line: \leq or \geq
- Dotted line: $<$ or $>$

$$y > 2x - 6$$

8. Graph the inequality. Name three points that would be considered solutions and three points that would not be considered solutions.



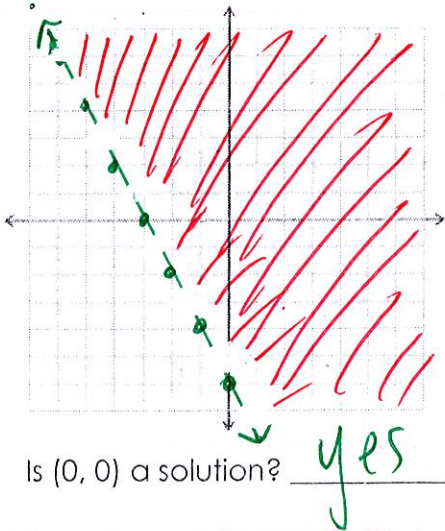
$$3x - 2y \leq 4$$

3 possible answers $(0, -2)$ $(0, 0)$ $(-1, 4)$ } many answers
 Definitely NOT answers $(0, -4)$ $(2, -1)$ $(5, 0)$

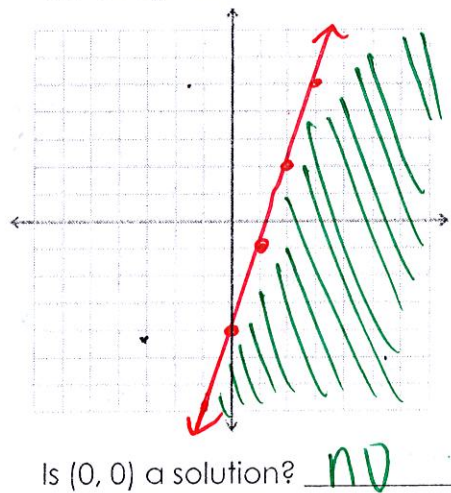
$$\begin{aligned} 3x - 2y &\leq 4 \\ -2y &\leq -3x + 4 \\ y &\geq \frac{3}{2}x - 2 \end{aligned}$$

#9-10. Graph each inequality and determine if the origin is a solution.

9. $y > -2x - 6$



10. $8 + 2y \leq 6x$

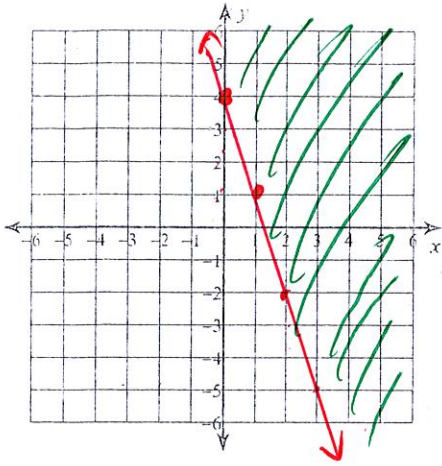


$$\begin{aligned} 8 + 2y &\leq 6x \\ -8 &\quad -8 \\ 2y &\leq 6x - 8 \\ y &\leq 3x - 4 \end{aligned}$$

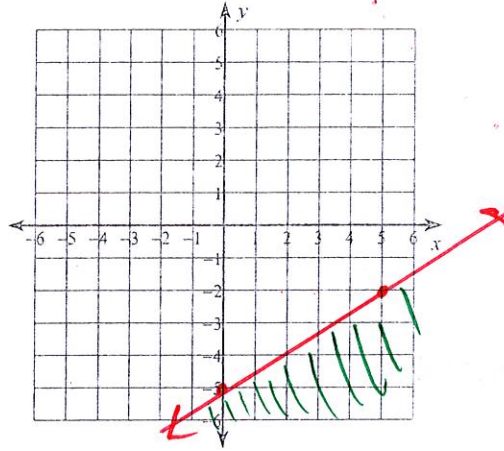
Graphing Linear Inequalities

Sketch the graph of each linear inequality.

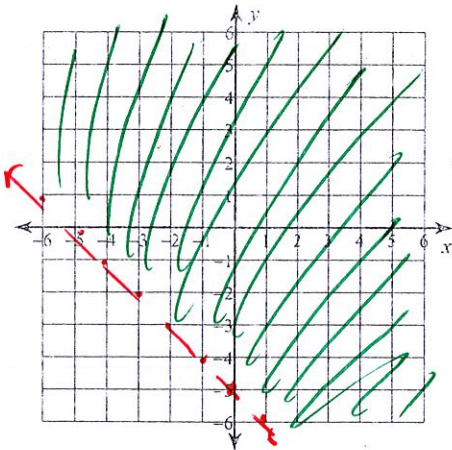
1) $y \geq -3x + 4$



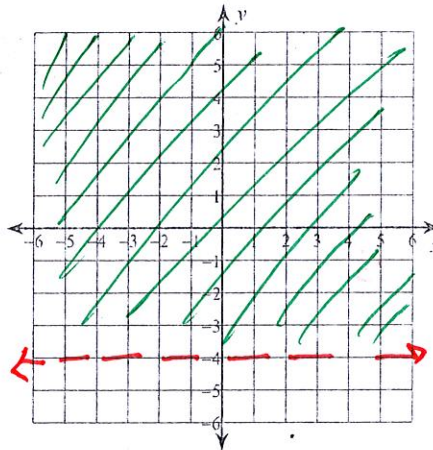
2) $y \leq \frac{3}{5}x - 5$



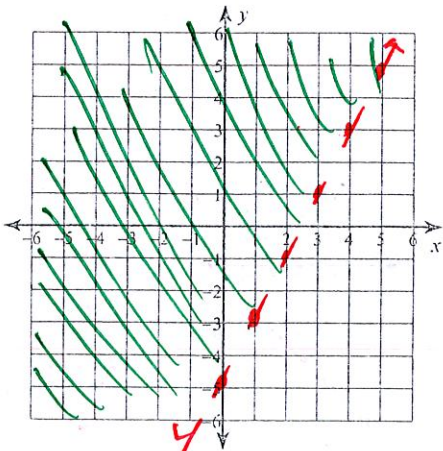
3) $y > -x - 5$



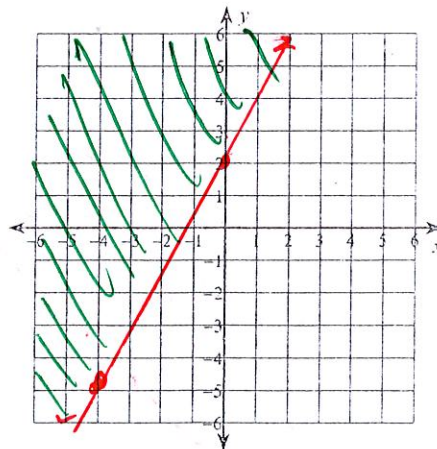
4) $y > -4$



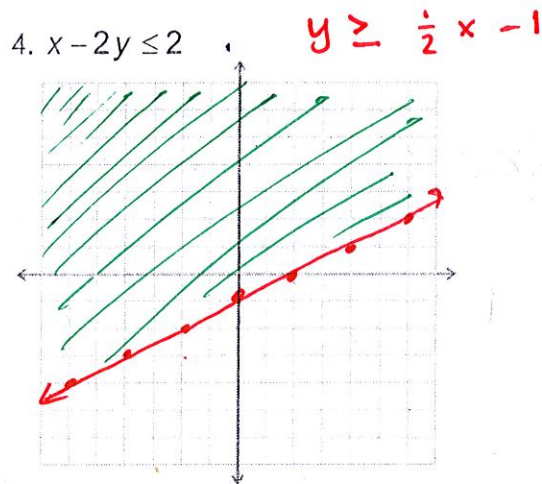
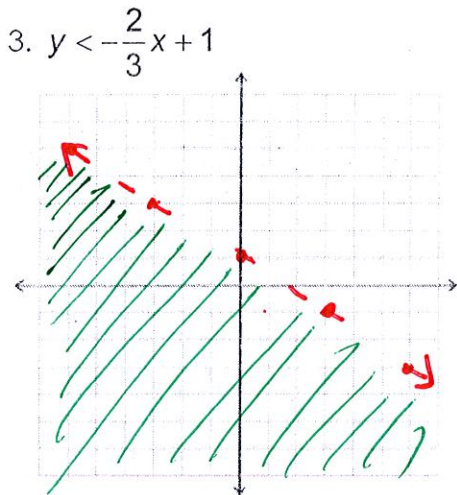
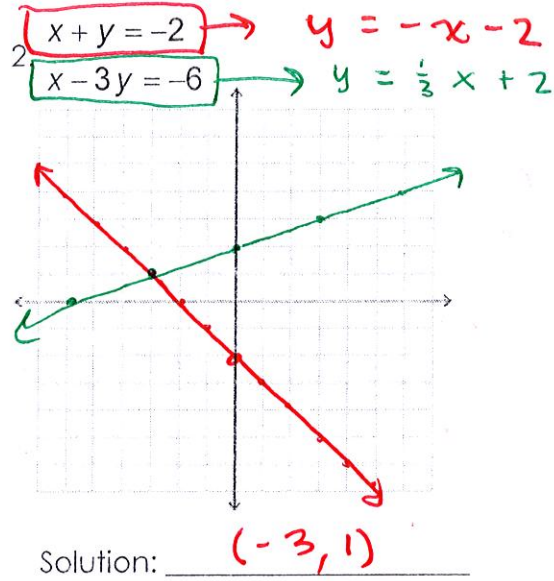
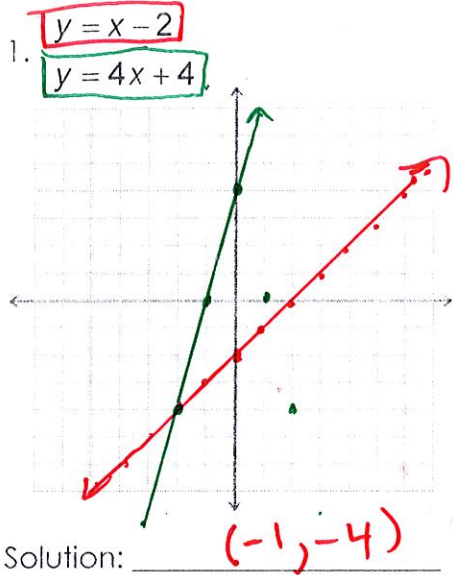
5) $y > 2x - 5$



6) $y \geq \frac{7}{4}x + 2$



Warm - Up: #1 - 2 Solve each system of linear equations. #3 - 4 Graph each linear inequality.



Solving Systems of Inequalities

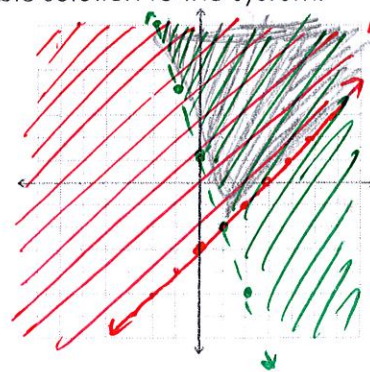
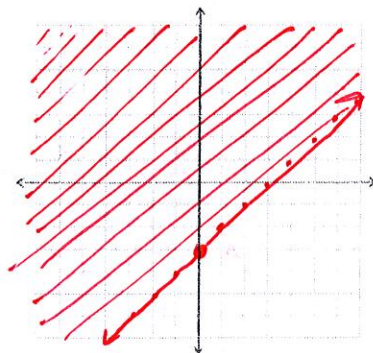
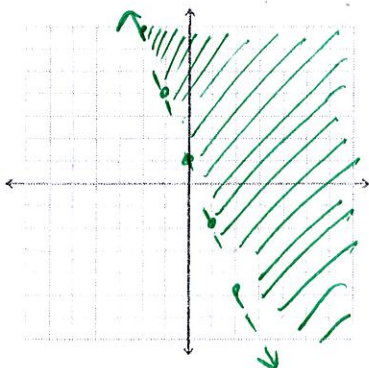
A system of inequalities consists of two or more linear inequalities graphed on the same plane.

A solution to the system of linear inequalities would be a coordinate that satisfies both inequalities.

1. Graph $y > -3x + 1$

2. Graph $y \geq x - 3$

3. Graph each inequality on the same graph. Do you see the overlap? Name a possible solution to the system.



a point here
ex:
 $(1, 5)$
 $(3, 6)$