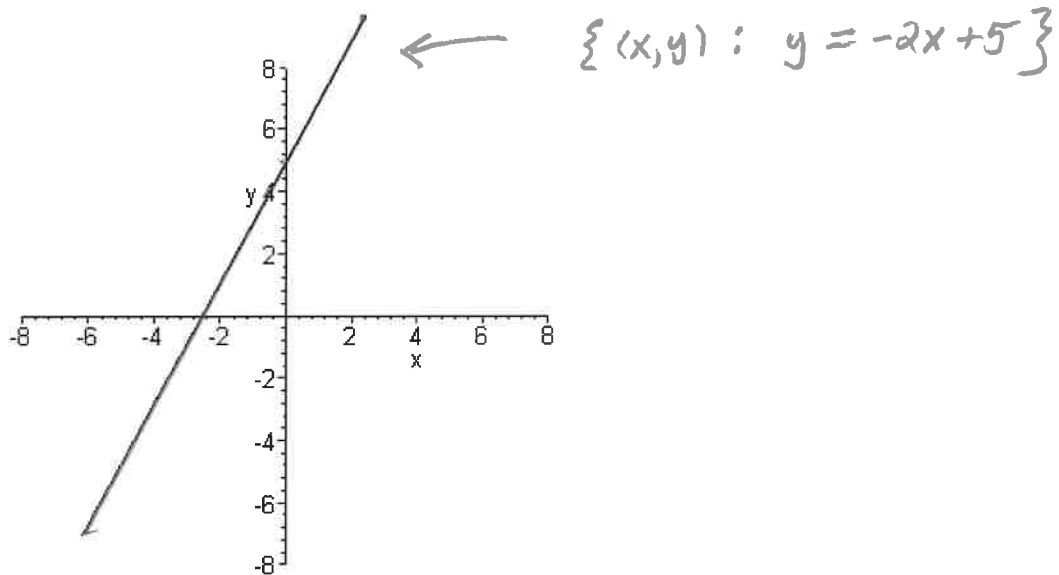
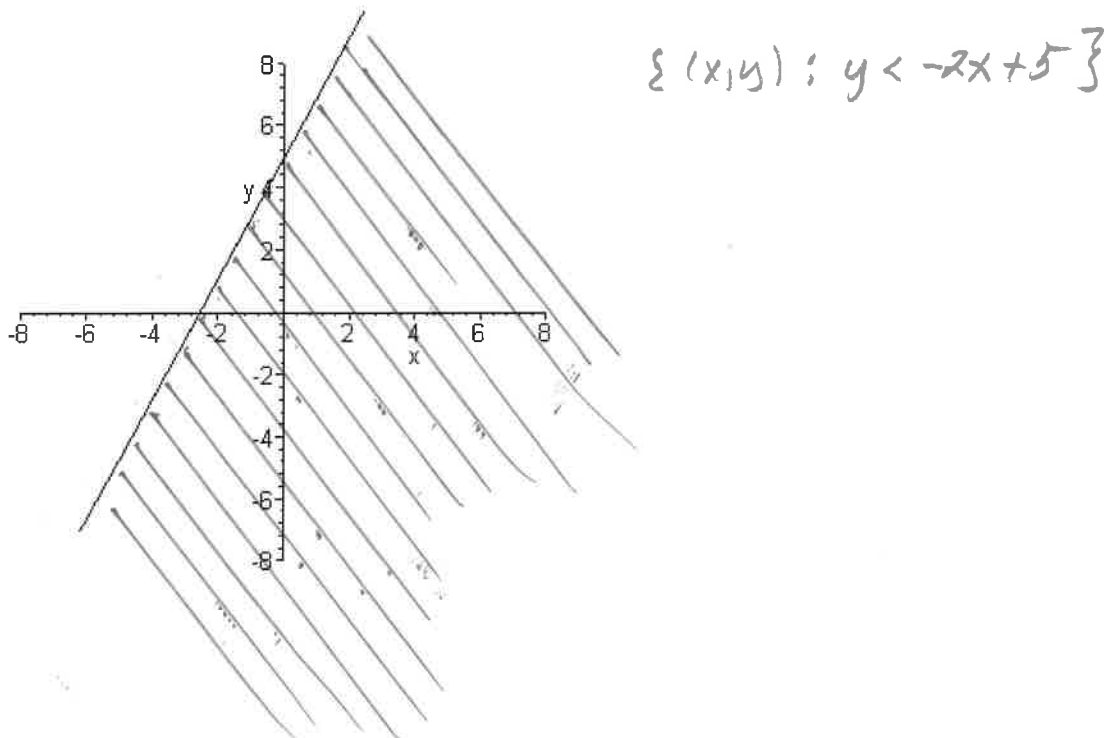


Section 2.5 Linear Inequalities in Two Variables

Review: What is the relationship between the equation $y = -2x + 5$ and the graph of the equation shown below?



Review: What is the relationship between the equation $y < -2x + 5$ and the graph of the equation shown below?



Solve the inequality $2x + 3y \leq -2$.

Will the graph of the solution set require a dashed or solid line?

solid

Write the inequality in the form: $y \leq \text{or } \geq mx + b$

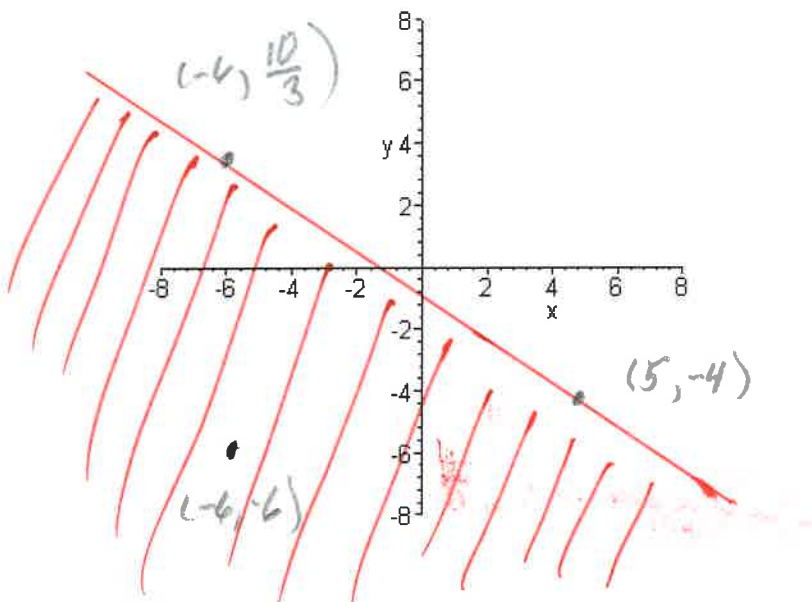
$$3y \leq -2x - 2$$

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

Find two points that lie on the boundary line for the solution set.

$$(5, -4), \left(-6, \frac{10}{3}\right)$$

Graph the solutions set by shading the appropriate side of the boundary line.



Solve the inequality $\frac{3x+y}{12} \geq \frac{1}{4}y - \frac{1}{3}x$.

Will the graph of the solution set require a dashed or solid line?

solid

Write the inequality in the form: $y \leq \text{or} \geq mx + b$

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

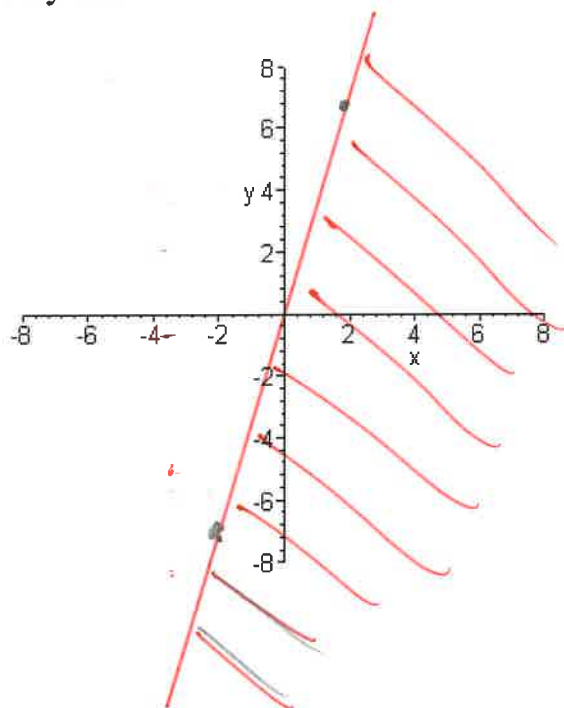
$$7x \geq 2y, \quad 2y \leq 7x$$

$$y \leq \frac{7}{2}x$$

Find two points that lie on the boundary line for the solution set.

$$(2, 7), \quad (-2, -7)$$

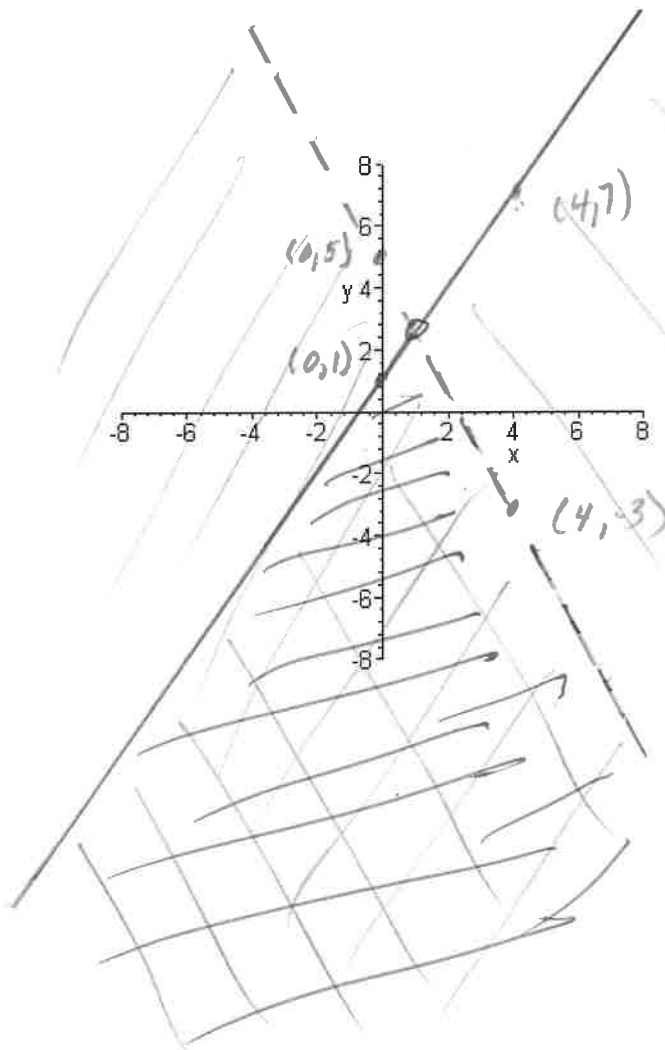
Graph the solutions set by shading the appropriate side of the boundary line.



Solve the compound inequality $2x + y < 5$ and $3x - 2y \geq -2$.

$$y < -2x + 5$$

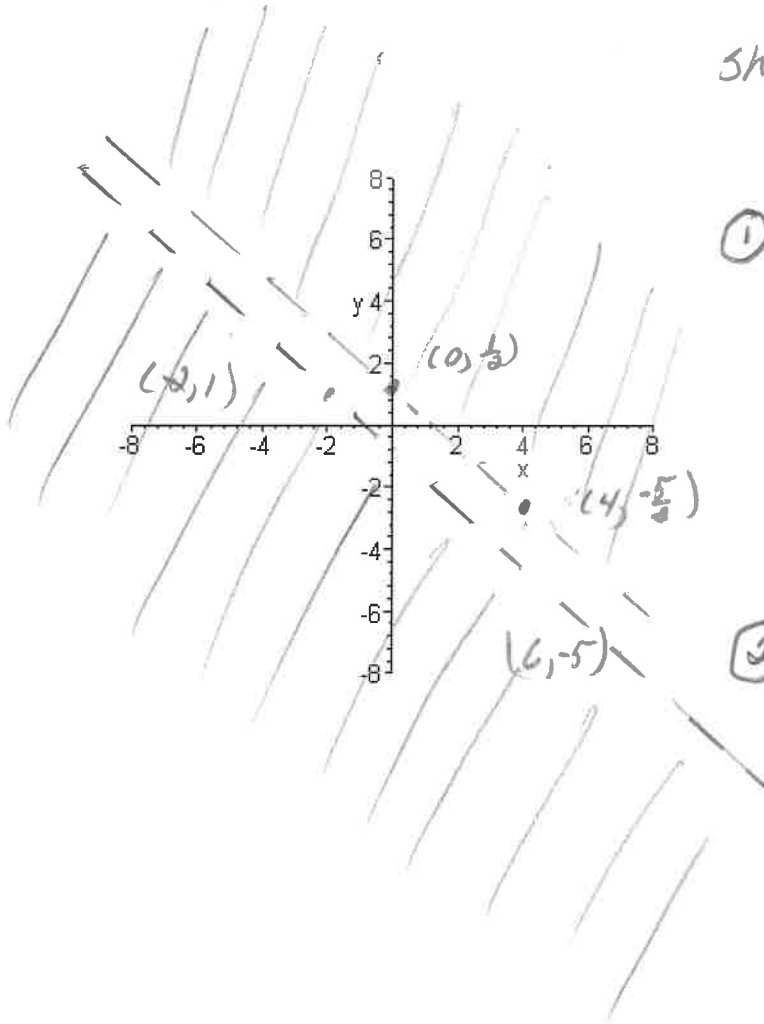
$$y \leq \frac{3}{2}x + 1$$



Solve the inequality $|3x + 4y| > 2$

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

shade both regions



$$\textcircled{1} \quad 4y > 2 - 3x$$

$$y > -\frac{3}{4}x + \frac{1}{2}$$

or

$$4y < -2 - 3x$$

$$\textcircled{2} \quad y < -\frac{3}{4}x - \frac{1}{2}$$