

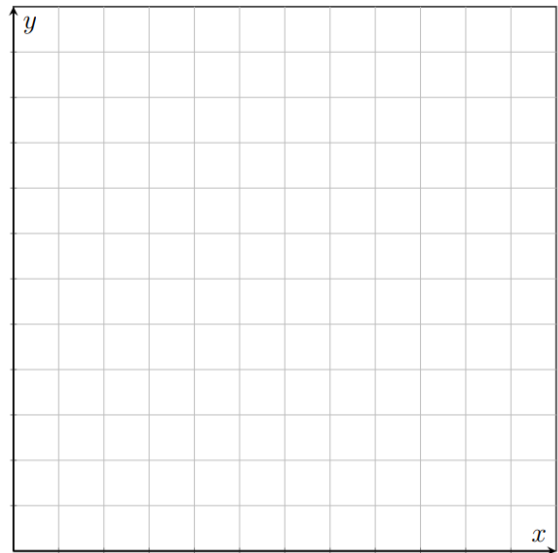
Section 4.10 Linear Inequalities in Two Variables

1. A couple is planning their wedding. They want the total cost of catering (x , in dollars) and renting the venue (y , in dollars) to be a maximum of \$4,000, but they hope to spend less. Write an inequality to model this situation.

a. Find the x -intercept and y -intercept and graph the inequality. Label the axes and scale.

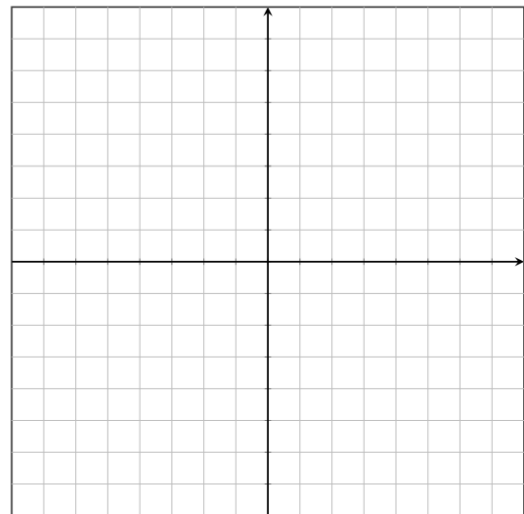
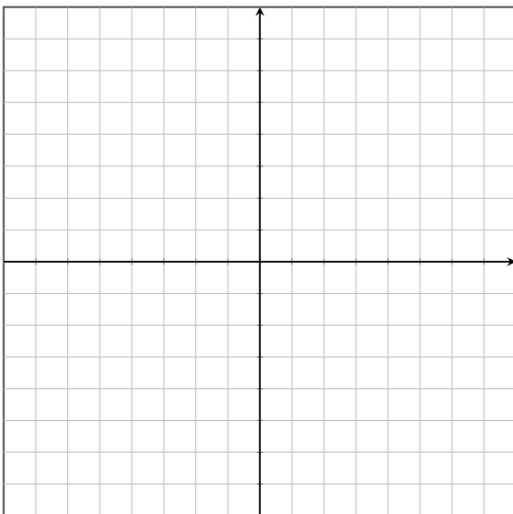
b. Shade all the points that would satisfy their requirement.

c. Solve the inequality for y to put it in slope-intercept form. What does the direction of the inequality tell you about which way to shade on the graph?



2. a. Graph the linear inequality $y > \frac{1}{2}x - 3$.

b. Graph the inequality $y \leq -2x + 5$



3. Summarize the types of lines and shading for each form of the inequality.

Type of Line

Direction of Shading

$$y > mx + b$$

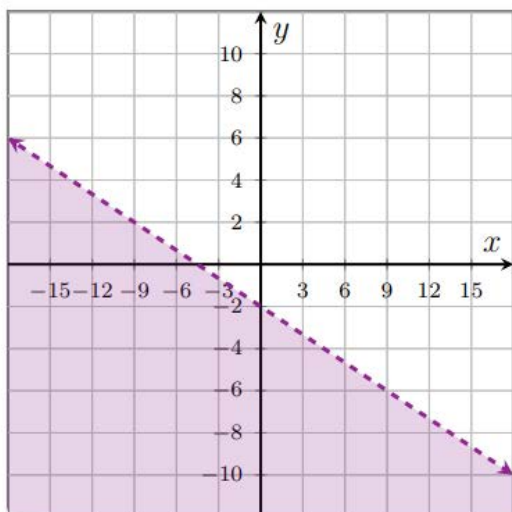
$$y \geq mx + b$$

$$y < mx + b$$

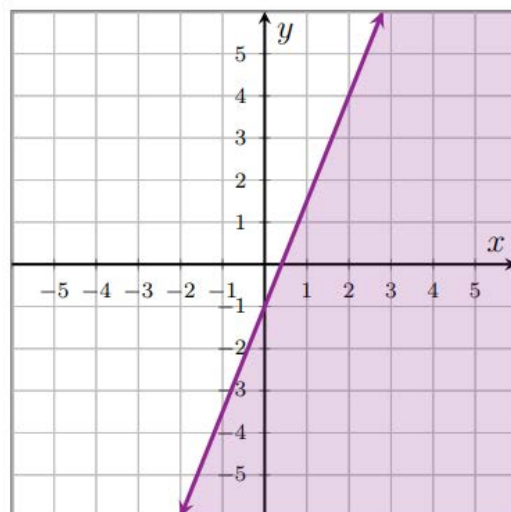
$$y \leq mx + b$$

4. Find and state an inequality whose solution set would be the graph shown.

a.



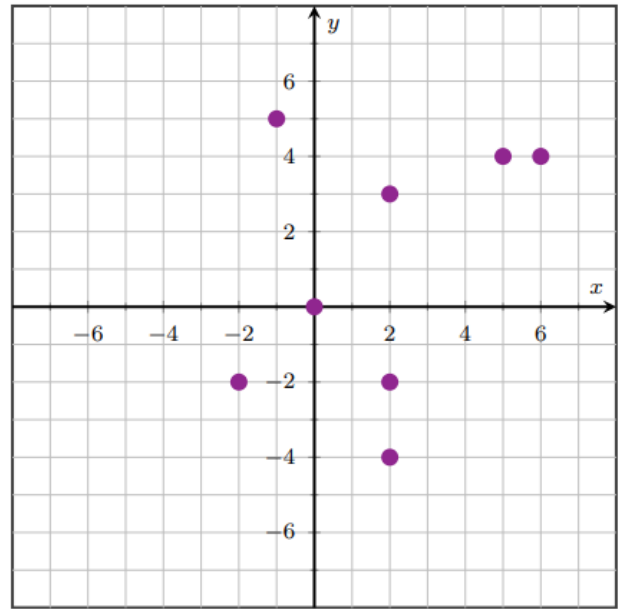
b.



5. a. Is the point (6,0) a solution to the inequality graphed in 4a above? How could you prove this algebraically?

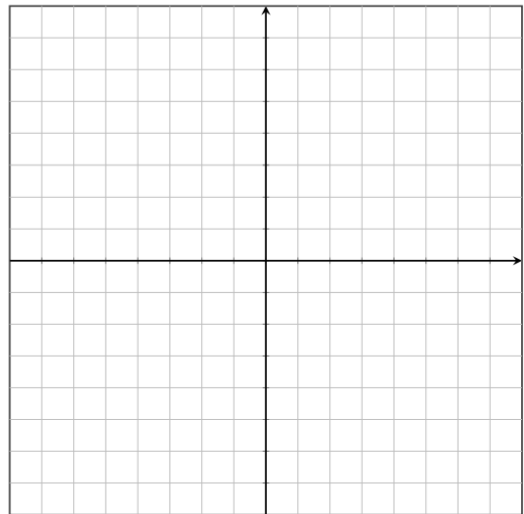
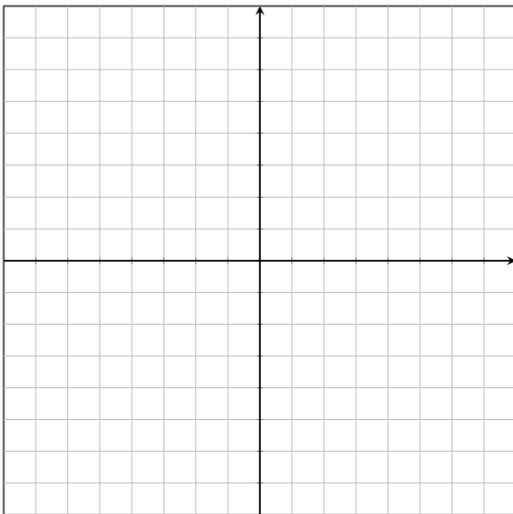
b. Is the point (3,-2) a solution of the inequality graphed in 4b above? Prove this algebraically.

6. Which points are solutions to the linear inequality $4x - 3y \geq 12$?



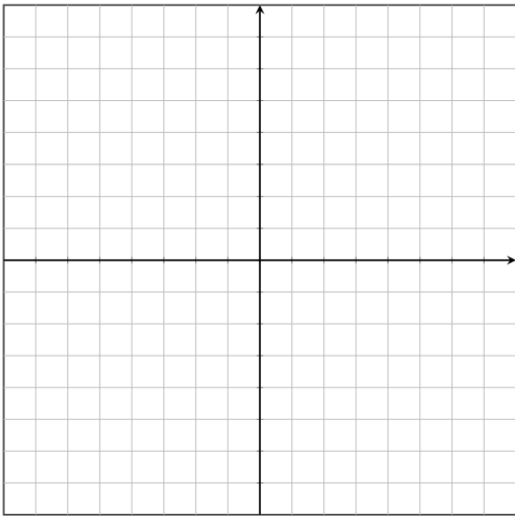
7. a. Graph the linear inequality $2x - 5y < 10$.

b. Graph the inequality $x > -2$

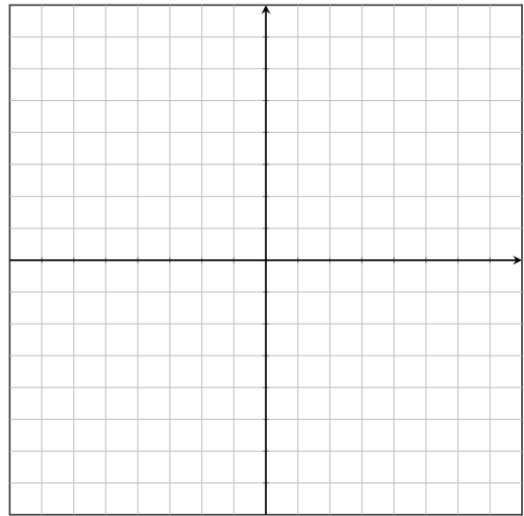


More Practice

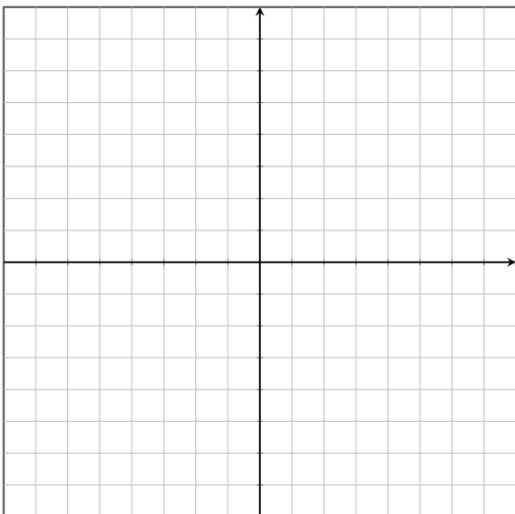
8. a. Graph the linear inequality $x - y > 4$.



b. Graph the inequality $x \geq -3$



9. a. Graph the linear inequality $2x - 3y < -2$.



b. Graph the inequality $y > 4$

