

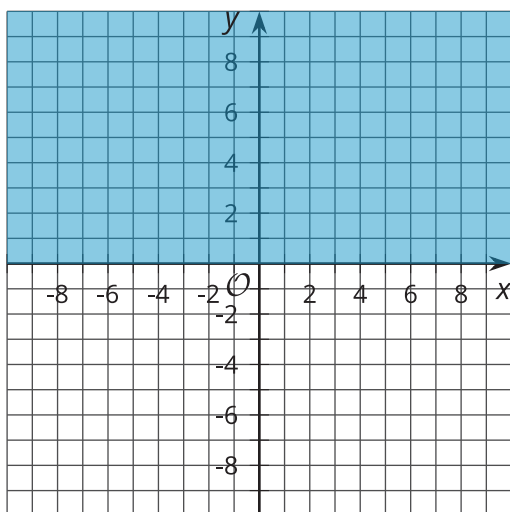
# From One- to Two-Variable Inequalities

Let's look at inequalities in two dimensions.

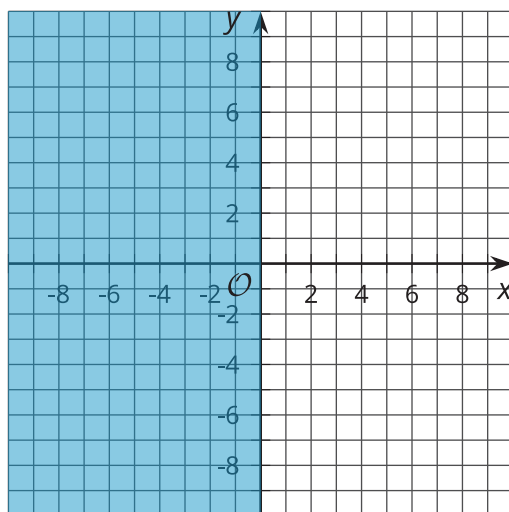
## 4.1 Describing Regions of the Plane

For each graph, what do all the ordered pairs in the shaded region have in common?

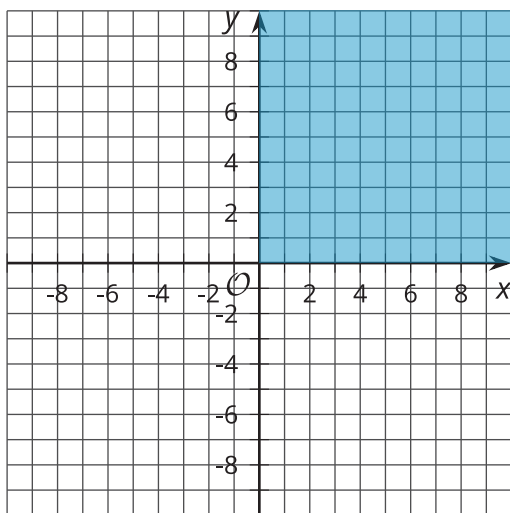
A



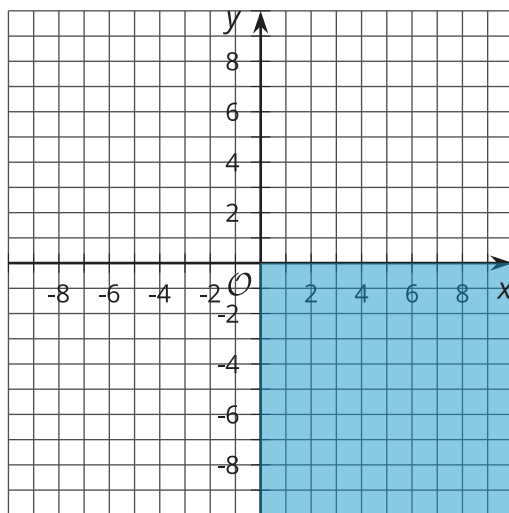
B



C



D



## 4.2 More or Less

1. Write at least 3 values for  $x$  that make the inequality true.

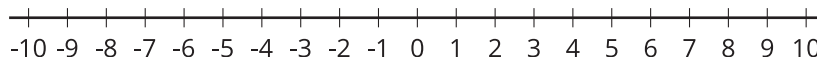
a.  $x < -2$

b.  $x + 2 > 4$

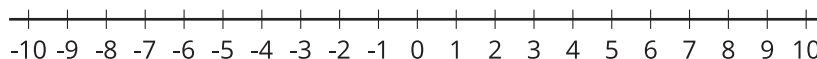
c.  $2x - 1 \leq 7$

2. Graph the solution to each inequality on a number line.

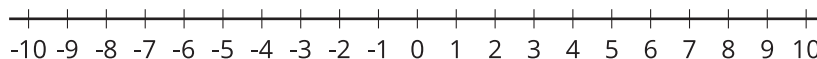
a.



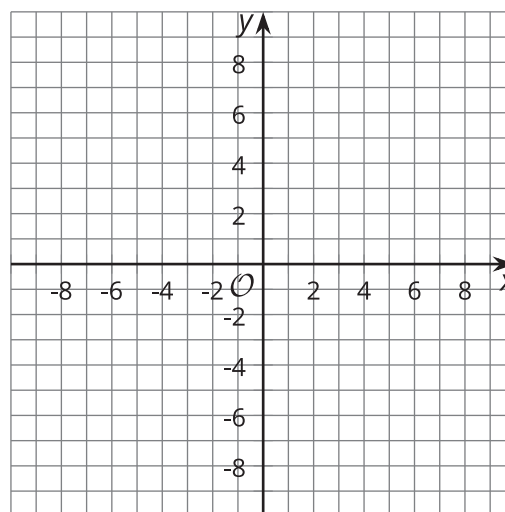
b.



c.



3. Using the inequality  $x < -2$ , write 3 coordinate pairs for which the  $x$ -coordinate makes the inequality true. Use the coordinate plane to plot your 3 points.



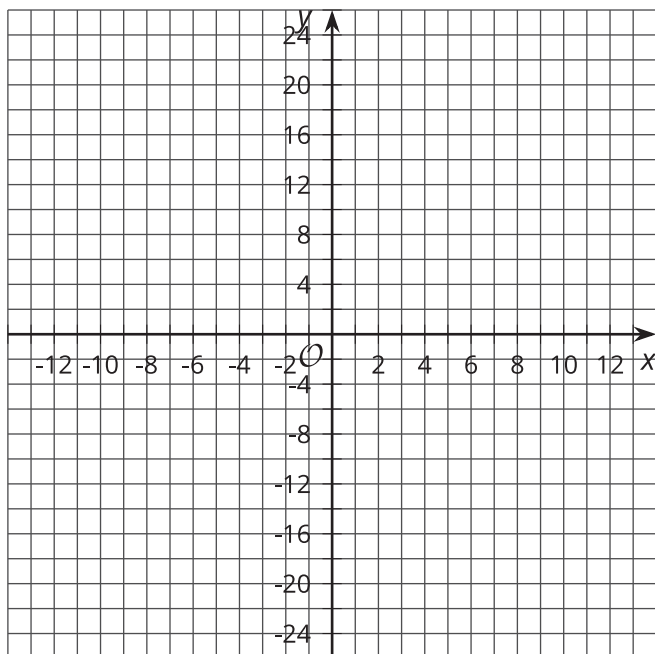
## 4.3 Above or Below the Line

1. Graph the line that represents the equation  $y = 3x - 4$ .

2. Is the point  $(4, 8)$  on the line?

a. Explain how you know using the graph.

b. Explain how you know using the equation.



3. Use the 3 points  $(5, a)$ ,  $(-7, b)$  and  $(c, 20)$ .

a. Write values for  $a$ ,  $b$ , and  $c$  so that the points are on the line.

b. Write values for  $a$ ,  $b$ , and  $c$  so that the points are above the line.

c. Write values for  $a$ ,  $b$ , and  $c$  so that the points are below the line.