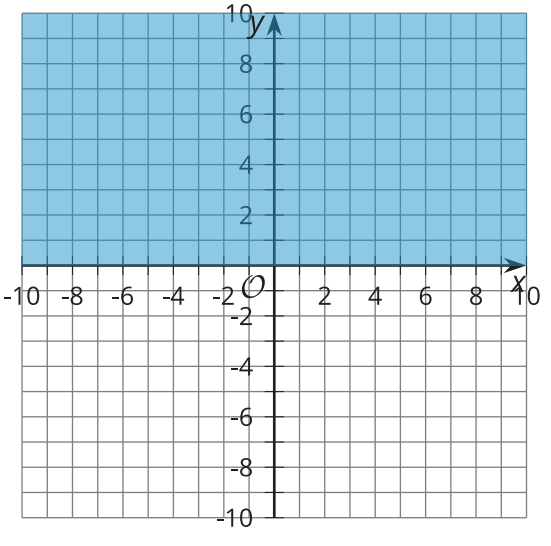
Lesson 21: From One- to Two-Variable Inequalities

- Let's look at inequalities in two dimensions.

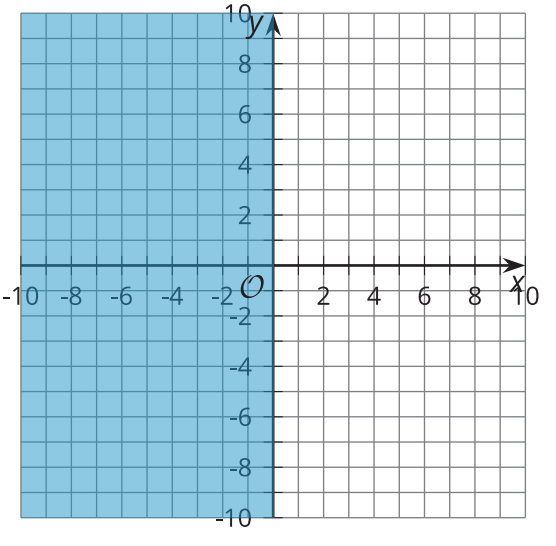
21.1: Describing Regions of the Plane

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

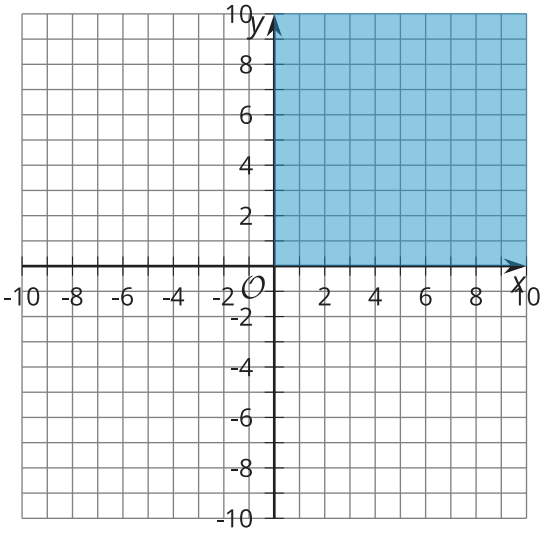
A



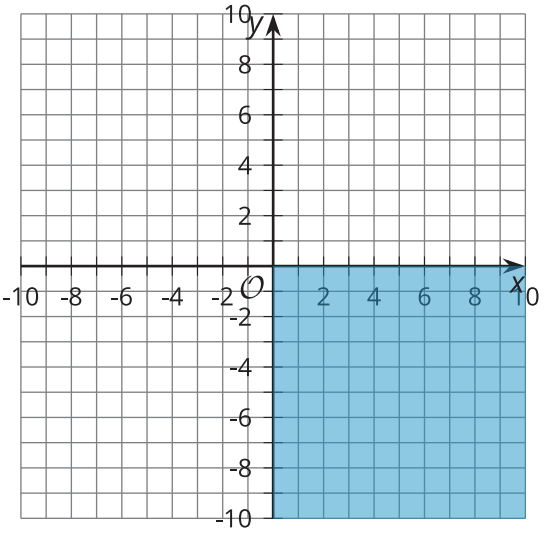
B



C



D



21.2: More or Less

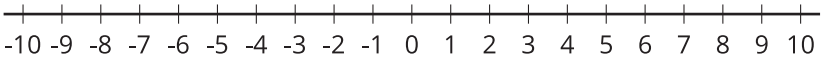
1. Write at least 3 values for x that make the inequality true.

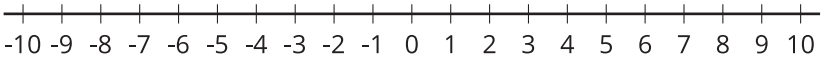
   a. $x < -2$

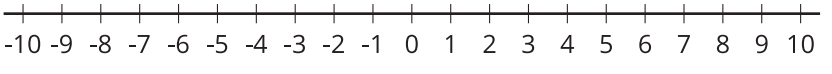
   b. $x + 2 > 4$

   c. $2x - 1 \leq 7$

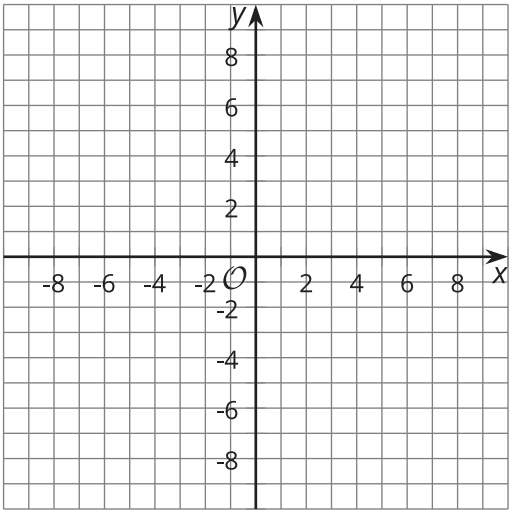
2. Graph the solution to each inequality on a number line.

   a. 

   b. 

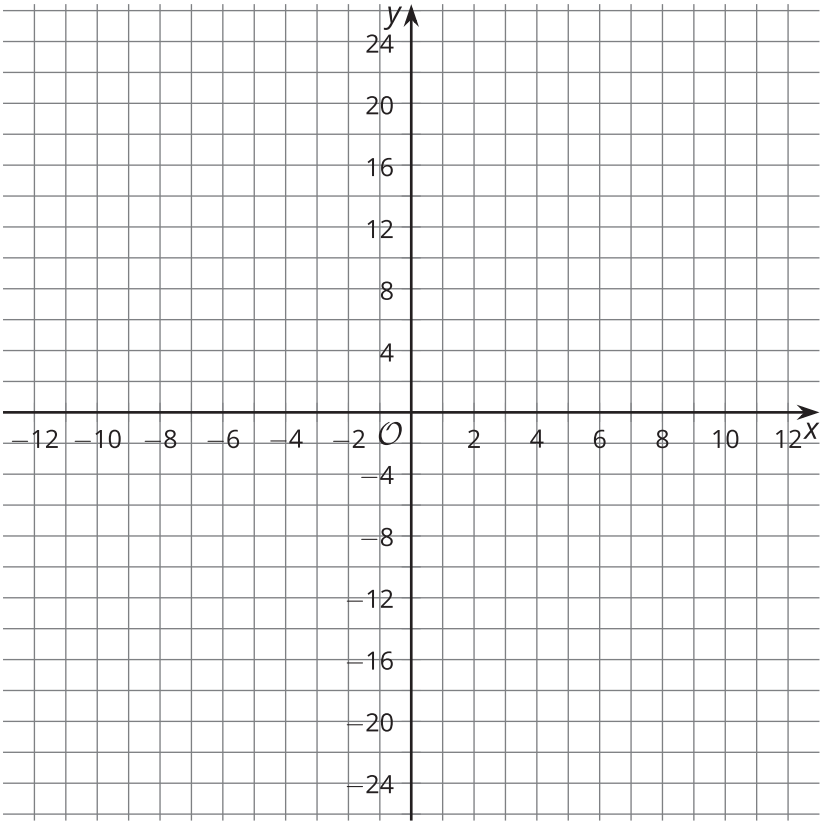
   c. 

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.



21.3: 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.