Unit 4, Lesson 4

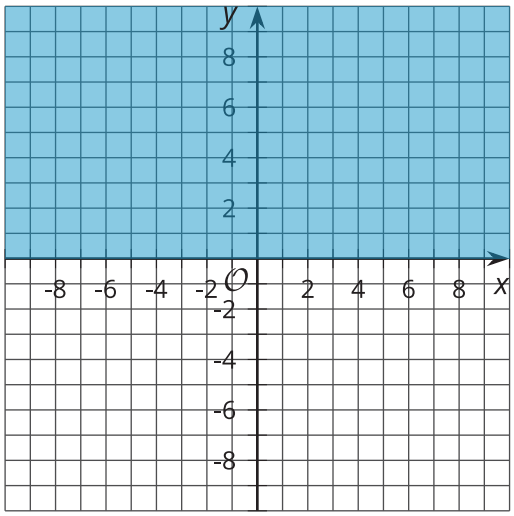
From One- to Two-Variable Inequalities

Let's look at inequalities in two dimensions.

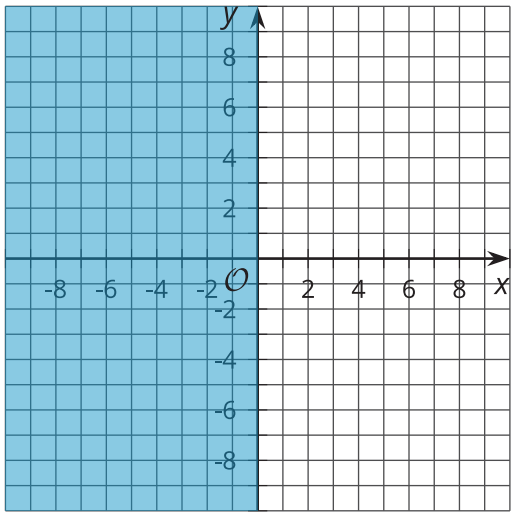
4.1 Describing Regions of the Plane

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

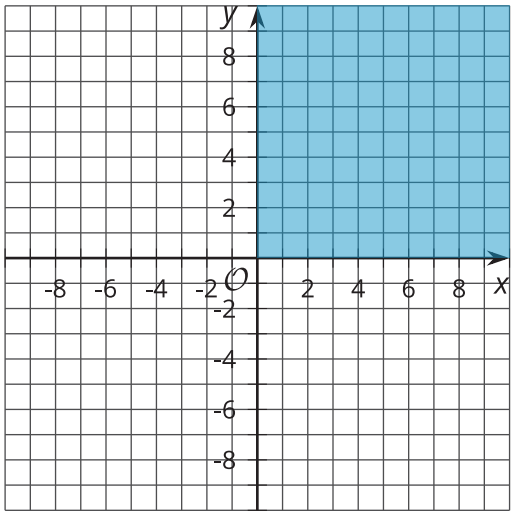
A



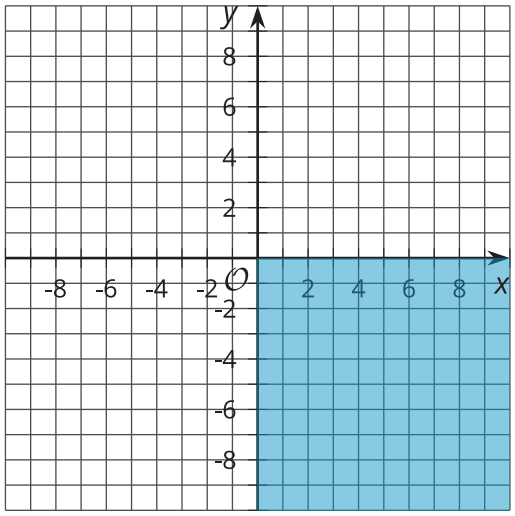
B



C



D



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4.2 More or Less

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

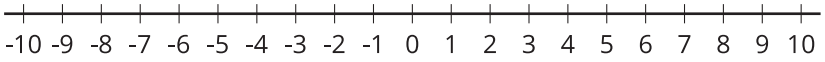
   a. $x < -2$

   b. $x + 2 > 4$

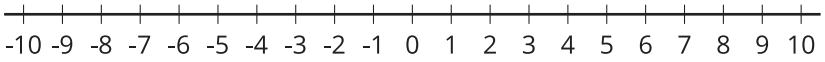
   c. $2x - 1 \leq 7$

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

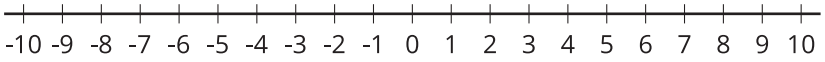
   a.

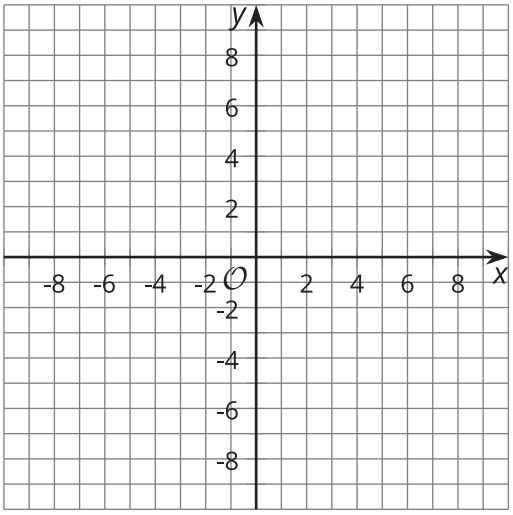
   b.

   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.

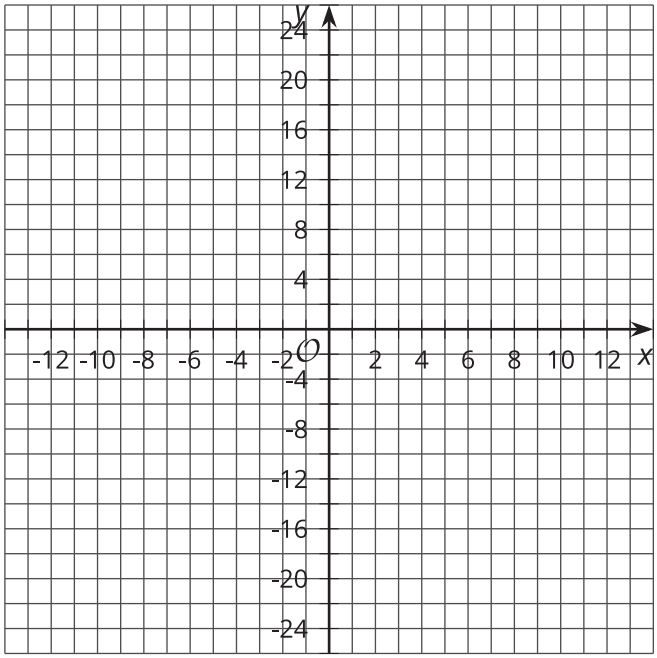


4.3 Above or Below the Line

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.