Looking Ahead

Now that you have reviewed the main ideas around the Cartesian coordinate system, you will apply these skills to more advanced problems. For example, the next exercise involves identifying key features of a circle and then graphing the circle on the Cartesian plane.

Example Preview

Consider the following equation of a circle. Find the center (h,k), the radius r, and graph the circle.

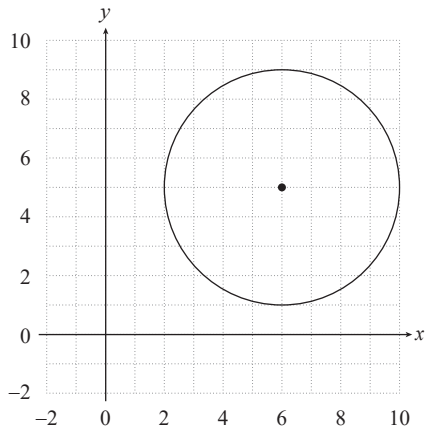
$$(x-6)^2+(y-5)^2=16$$

Solution

The standard form of the equation of a circle is $(x-h)^2+(y-k)^2=r^2$.

The center is $(h,k)=(6,5)$ and the radius is $r=4$ because $r^2=16$.

Plot the center of the circle at $(6,5)$ and size the circle such that the points on the circle are 4 units away from the center.



3.R.5 Exercises

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. The graph of every ordered pair that has a positive x-coordinate and a negative y-coordinate can be found in Quadrant IV.

2. To find the y-value that corresponds with $x=2$, substitute 2 for x into the given equation and solve for y.

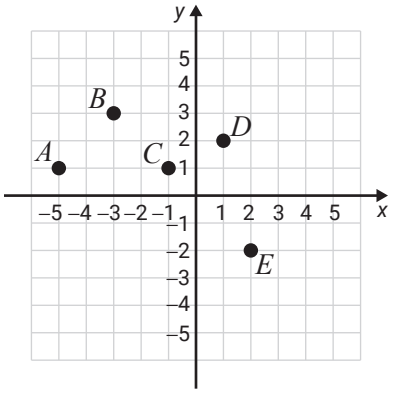
3. If $(-7, 3)$ is a solution of $y = 3x + 24$, then $(-7, 3)$ satisfies $y = 3x + 24$.

4. If point $A = (0, 4)$, then point A lies on the x-axis.

Practice

List the set of ordered pairs corresponding to the points on the graph.

5.



Plot each set of ordered pairs and label the points.

6. $\{A(4, -1), B(3, 2), C(0, 5), D(1, -1), E(1, 4)\}$

Determine the missing coordinate in each of the ordered pairs so that the point will satisfy the equation given.

7. $x - 2y = 2$

a. $(0, \_\_)$

b. $(4, \_\_)$

c. $(\_\_, 0)$

d. $(\_\_, 3)$

Complete the tables so that each ordered pair will satisfy the given equation. Plot the resulting sets of ordered pairs.

8. $y = 2x - 3$

x	*y*
0	
	–1
–2	
	3

Determine which, if any, of the ordered pairs satisfy the given equation.

9. $2x - 3y = 7$

a. $(1, 3)$

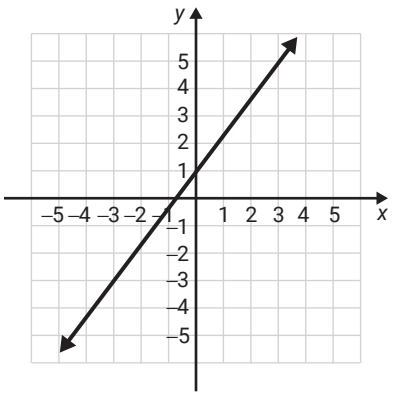
b. $\left(\frac{1}{2}, -2\right)$

c. $\left(\frac{7}{2}, 0\right)$

d. $(2, 1)$

The graph of a line is shown. List any three points on the line. (There is more than one correct answer.)

10.



Applications

Solve.

11. ***Exchange Rates:*** At one point in 2017, the exchange rate from US dollars to Euros was $E = 0.85D$ where E is Euros and D is dollars.

a. Make a table of ordered pairs for the values of D and E if D has the values \$100, \$200, \$300, \$400, and \$500.

b. Plot the points corresponding to the ordered pairs.

12. ***Temperature:*** Given the equation $F = \frac{9}{5}C + 32$ where C is temperature in degrees Celsius and F is the corresponding temperature in degrees Fahrenheit:

a. Make a table of ordered pairs for the values of C and F if C has the values $-20°$, $-10°$, $-5°$, $0°$, $5°$, $10°$, and $15°$.

b. Plot the points corresponding to the ordered pairs.