

The Coordinate Plane

Name: _____

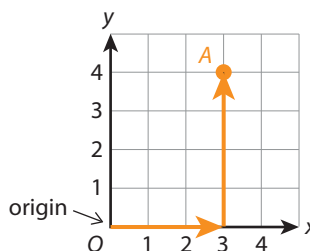
Prerequisite: Graph Points

Study the example showing how to plot points on a coordinate grid. Then solve problems 1–11.

Example

The location of a point is named with an x -coordinate and a y -coordinate. The coordinates are written as an ordered pair, (x -coordinate, y -coordinate). Follow these steps to plot point A at $(3, 4)$.

- Start at the origin.
- Move 3 units to the right.
- Move 4 units up.
- Label the point A .



1 What ordered pair describes the origin? _____

2 What are the coordinates of point A ?

x -coordinate: _____ y -coordinate: _____

3 Along which axis do you count each number of units in order to plot point A ?

3 units to the right: _____-axis 4 units up: _____-axis

4 Plot a new point at $(4, 3)$. Label the point C .

5 Zachary says that point C has the same location as point A because both points have the same coordinates. Is Zachary right? Explain why or why not.

Vocabulary

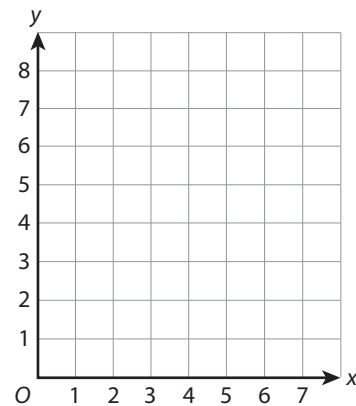
x -coordinate a point's horizontal distance from the origin along the x -axis.

y -coordinate a point's vertical distance from the origin along the y -axis.



Solve.

Use the coordinate plane at the right to solve problems 6–9.



6 Plot and label the following points.

$Q(5, 5)$ $R(7, 3)$ $S(2, 8)$

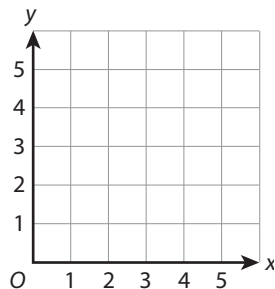
7 Choose one point from problem 6. Complete the following statements to describe how you plotted the point.

- a. Start at (_____, _____).
- b. Move _____ units to the right. Move _____ units up.
- c. Label the point _____.

8 Plot points at $(0, 3)$, $(0, 1)$, and $(0, 5)$. What is true about all points with an x -coordinate of 0?

9 Plot points at $(2, 0)$, $(4, 0)$, and $(3, 0)$. What is true about all points with a y -coordinate of 0?

Use the coordinate plane at the right to solve problems 10–11.



10 Write ordered pairs for four points that you can plot on the coordinate plane. Each ordered pair must have a y -coordinate that is 2 units less than its x -coordinate. Plot the points.

11 Describe a pattern for the points you plotted in problem 10.

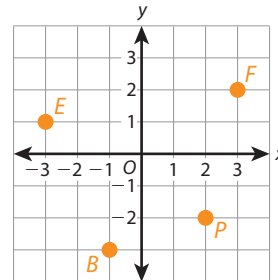
Graphing on the Coordinate Plane

Study the example showing how to graph on the coordinate plane. Then solve problems 1–7.

Example

The table shows the locations of exhibits at a science museum. Graph each exhibit on the coordinate plane.

| Exhibit | Fossils | Birds | Planets | Energy |
|-------------|---------|----------|---------|---------|
| Coordinates | (3, 2) | (-1, -3) | (2, -2) | (-3, 1) |



For each ordered pair in the table, start at the origin, move left or right according to the x-coordinate, and then move up or down according to the y-coordinate.

1 Which exhibit is located at point *E* on the coordinate plane?

2 What are the x- and the y-coordinates of point *E*?

3 How are the x-coordinate and the y-coordinate in an ordered pair related to the origin?

4 Complete the table below to describe the location of each exhibit.

| Exhibit | Location from the Origin |
|---------|--------------------------|
| Fossils | |
| Birds | |
| Planets | |
| Energy | |



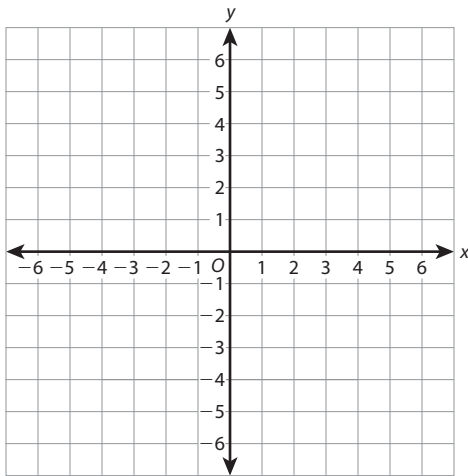
Solve.

Use this information for problems 5–6.

You can use a coordinate plane to represent the locations of different activities at a summer camp. The ordered pairs in the table show the location of each activity.

| Activity | Canoeing | Swimming | Hiking | Art | Fishing |
|-------------|-----------|-----------|------------|----------|-----------|
| Coordinates | $(-6, 5)$ | $(2, -2)$ | $(-3, -3)$ | $(4, 6)$ | $(-4, 0)$ |

- 5** Graph each activity as a point on the coordinate plane. Label each point with the first letter of the activity.



- 6** Describe the location from the origin of each point in problem 5.

- 7** What are the signs of the coordinates of a point in each of the four quadrants?
