

Lesson
40

Plotting and Naming Points on a Coordinate System

5.G.1

Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond.



Understand the Standards

It is helpful to locate and plot points on a coordinate grid. This lets you see how the points are arranged and how far one point is from another.

Jaime's teacher wrote coordinates on the blackboard. Where should Jaime plot the point on a coordinate grid?



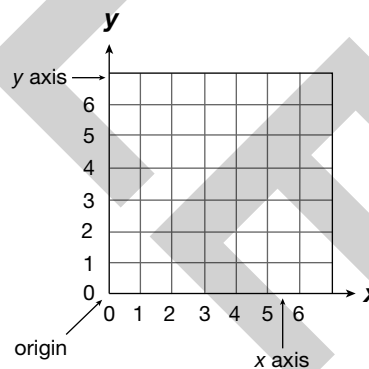
Words to Know

coordinate system
axes
x-axis
y-axis
origin
ordered pair
x-coordinate
y-coordinate

A **coordinate system** is made up of perpendicular number lines called **axes**. The horizontal number line is the **x-axis** and the vertical number line is the **y-axis**. The axes meet at the 0 on each line to form the **origin**. This system is also called a coordinate plane or a coordinate grid.

Any given point is located by using an **ordered pair**. The first number of the ordered pair is the **x-coordinate** and tells how far to travel on the x-axis. The second number of the ordered pair is the **y-coordinate** and tells how far to travel on the y-axis (x-coordinate, y-coordinate). The ordered pair for the origin is always (0, 0).

Coordinate Grid





Guided Instruction

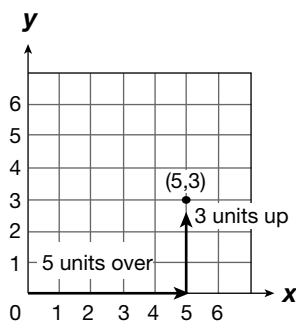
Plot Jaime's point, $(5, 3)$, on a coordinate grid.

Step 1 Identify the coordinates:
(x -coordinate, y -coordinate)

x -coordinate: 5

y -coordinate: 3

Step 2 Plot the x -coordinate.
Start at the origin.
Move to the right 5 units.



Step 3 Plot the y -coordinate.
Move up 3 units.

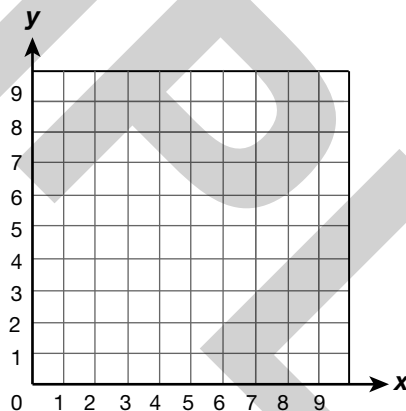
Step 4 Draw and label the point.



On Your Own

Plot the points listed below.

1. $(3, 4)$
2. $(9, 0)$
3. $(5, 5)$



Use what you know about coordinates to complete each description.

4. $(5, 9)$

5 units to the right on the x -axis

_____ units up on the _____

6. $(3, 0)$

_____ units to the right on the x -axis

_____ units up on the y -axis

5. (_____, _____)

6 units to the right on the x -axis

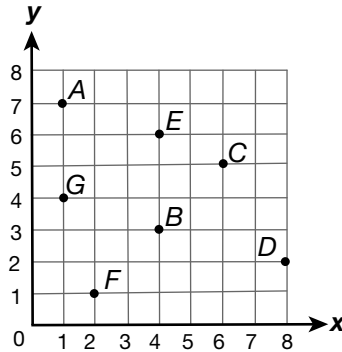
1 unit up on the y -axis

7. (_____, _____)

2 units to the right on the x -axis

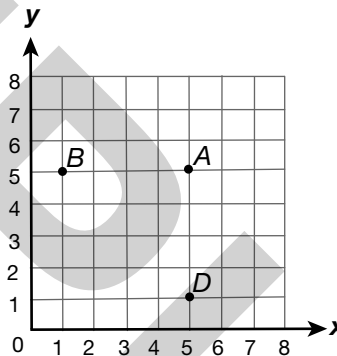
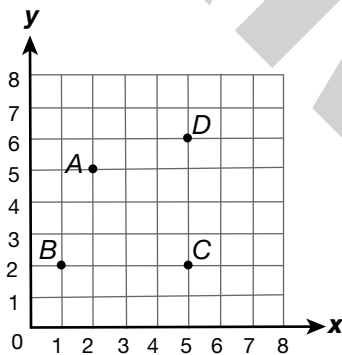
9 units up on the y -axis

Use the coordinate grid to answer questions 8–11.



8. Which point is located at (6, 5)? _____
9. What are the coordinates of point *A*? _____
10. Which point is over 4 units and up 3 units from the origin? _____
11. Which point is up 2 units and over 2 units from point *B*? _____
12. What are the coordinates of point *C*?

13. Which ordered pair will be the fourth corner of the square *ABCD*?

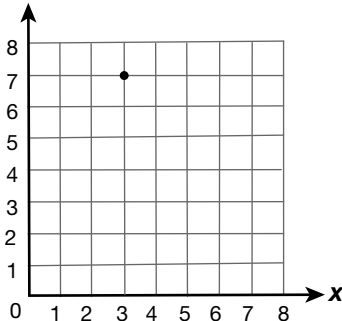


- | | |
|------------------|------------------|
| A. (2, 5) | B. (1, 2) |
| C. (5, 2) | D. (5, 6) |

- | | |
|------------------|------------------|
| A. (5, 5) | B. (5, 6) |
| C. (1, 1) | D. (5, 1) |

Elevate

14. *y*



Tyler was asked to plot (7, 3) on a coordinate plane. His point is shown. Did he plot the point correctly? If not, what error did he make?

- Elevate** 15. Vanessa plotted $(2, 1)$ and $(2, 5)$ on a coordinate plane. Give the coordinates for two other points that would form a rectangle. Explain how you found your answer.

SAMPLE