G5-M6-Lesson 3

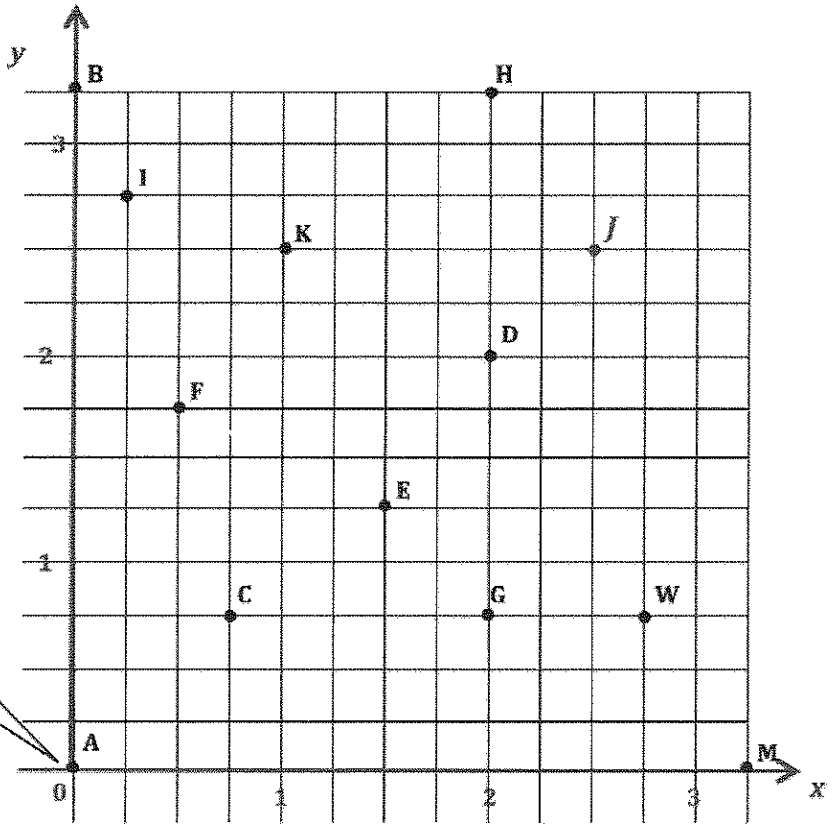
The y-axis is a vertical line. The x-axis is a horizontal line.

The origin, or $(0, 0)$, is where the x- and y-axes meet.

1. Use the grid below to complete the following tasks.
   a. Construct a y-axis that passes through points A and B. Label this axis.
   b. Construct an x-axis that is perpendicular to the y-axis that passes through points A and M.
   c. Label the origin.
   d. The x-coordinate of point W is $2\frac{3}{4}$. Label the whole numbers along the x-axis.
   e. Label the whole numbers along the y-axis.

The y-axis must be labeled the same way as the x-axis. On the x-axis, the distance between grid lines is $\frac{1}{4}$. I can use the same units for the y-axis.

I find point W on the coordinate plane. I can trace down with my finger to locate this spot on the x-axis. I count back to 0 and see that each line on the grid is $\frac{1}{4}$ more than the previous line.



This is the origin.

2. For the following problems, consider all the points on the previous page.

   a. Identify all the points that have a y-coordinate of $\frac{3}{4}$.

   C, G, and W

   I look for all of the points that are $\frac{3}{4}$ units from the x-axis.

   b. Identify all the points that have an x-coordinate of 2.

   G, D, and H

   I look for points that are 2 units from the y-axis.

   c. Name the point, and write the coordinate pair that is $2\frac{1}{2}$ units above the x-axis and 1 unit to the right of the y-axis.

   $K\left(1, 2\frac{1}{2}\right)$

   d. Which point is located $1\frac{1}{4}$ units from the x-axis? Give its coordinates.

   $E\left(1\frac{1}{2}, 1\frac{1}{4}\right)$

   e. Which point is located $\frac{1}{4}$ units from the y-axis? Give its coordinates.

   $I\left(\frac{1}{4}, 2\frac{3}{4}\right)$

   f. Give the coordinates for point C.

   $\left(\frac{3}{4}, \frac{3}{4}\right)$

   g. Plot a point where both coordinates are the same. Label the point J, and give its coordinates.

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

   There are infinite correct answers to this question. I could name coordinates that are not on the grid lines. For example, $(1.88, 1.88)$ would be correct.

   h. Name the point where the two axes intersect. Write the coordinates for this point.

   $A\ (0, 0)$

   This point is also known as the origin. The axes meet at the origin.

i. What is the distance between points W and G, or WG?

I count the units between the points. The distance between each grid line is $\frac{1}{4}$.

$\frac{3}{4}$ unit

j. Is the length of $\overline{HG}$ greater than, less than, or equal to $CG + KJ$?

$HG = 2\frac{1}{2}$ *units* $\quad CG = 1\frac{1}{4}$ *units* $\quad KJ = 1\frac{1}{2}$ *units* $\quad CG + KJ = 2\frac{3}{4}$ *units* $\quad HG < CG + KJ$

k. Janice described how to plot points on the coordinate plane. She said, "If you want to plot $(1, 3)$, go 1, and then go 3. Put a point where these lines intersect." Is Janice correct?

Janice is not correct. She should give a starting point and a direction. She should say, "Start at the origin. Along the x-axis, go 1 unit to the right, and then go up 3 units parallel to the y-axis."