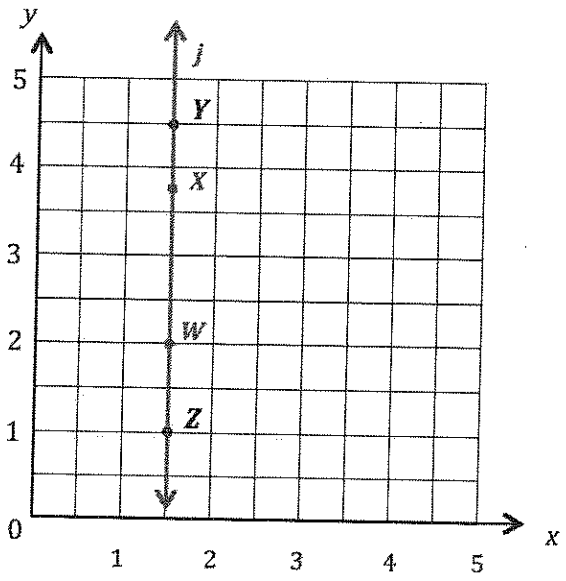
G5-M6-Lesson 5

1. Use the coordinate plane to answer the questions.



   a. Use a straight edge to construct a line that goes through points Z and Y. Label this line j.

   b. Line j is perpendicular to the x -axis, and is parallel to the y -axis.

   Parallel lines will never cross.

   Perpendicular lines form 90° angles.

   c. Draw two more points on line j. Name these points X and W.

   d. Give the coordinates of each point below.

2.

   a. W: $\left(1\frac{1}{2}, 2\right)$ X: $\left(1\frac{1}{2}, 3\frac{3}{4}\right)$ Y: $\left(1\frac{1}{2}, 4\frac{1}{2}\right)$ Z: $\left(1\frac{1}{2}, 1\right)$

   b. What do all these points on line j have in common?

   The x-coordinate is always $1\frac{1}{2}$.

   This line is perpendicular to the x-axis and parallel to the y-axis because the x-coordinate is the same in every coordinate pair.

   c. Give the coordinate pair of another point that falls on line j with a y-coordinate greater than 10.

   $\left(1\frac{1}{2}, 12\right)$

   As long as the x-coordinate is $1\frac{1}{2}$, the point will fall on line j.

3. For each pair of points below, think about the line that joins them. Will the line be parallel to the x-axis or y-axis? Without plotting them, explain how you know.

   a. $(1.45, 2)$ and $(66, 2)$

   Since these coordinate pairs have the same y-coordinate, the line that joins them will be a horizontal line and parallel to the x-axis.

   b. $\left(\frac{1}{2}, 19\right)$ and $\left(\frac{1}{2}, 82\right)$

   Since these coordinate pairs have the same x-coordinate, the line that joins them will be a vertical line and parallel to the y-axis.

4. Write the coordinate pairs of 3 points that can be connected to construct a line that is $3\frac{1}{8}$ units above and parallel to the x-axis.

   $\left(7, 3\frac{1}{8}\right)$ $\left(6\frac{1}{8}, 3\frac{1}{8}\right)$ $\left(79, 3\frac{1}{8}\right)$

   In order for the line to be $3\frac{1}{8}$ units above the x-axis, the coordinate pairs must have a y-coordinate of $3\frac{1}{8}$. I can use any x-coordinate.

5. Write the coordinate pairs of 3 points that lie on the x-axis.

   $(7, 0)$ $(11.1, 0)$ $(100, 0)$