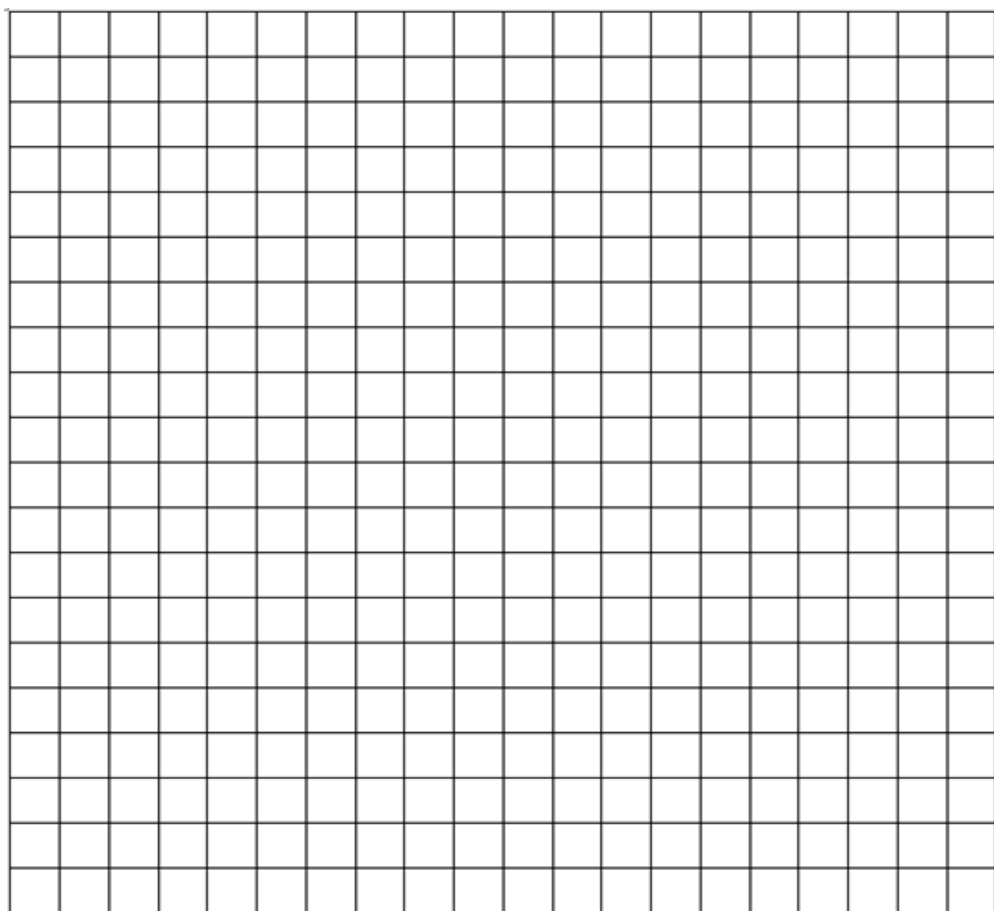


Lesson 17: Drawing the Coordinate Plane and Points on the Plane

Classwork

Opening Exercise

Draw all necessary components of the coordinate plane on the blank 20×20 grid provided below, placing the origin at the center of the grid and letting each grid line represent 1 unit.



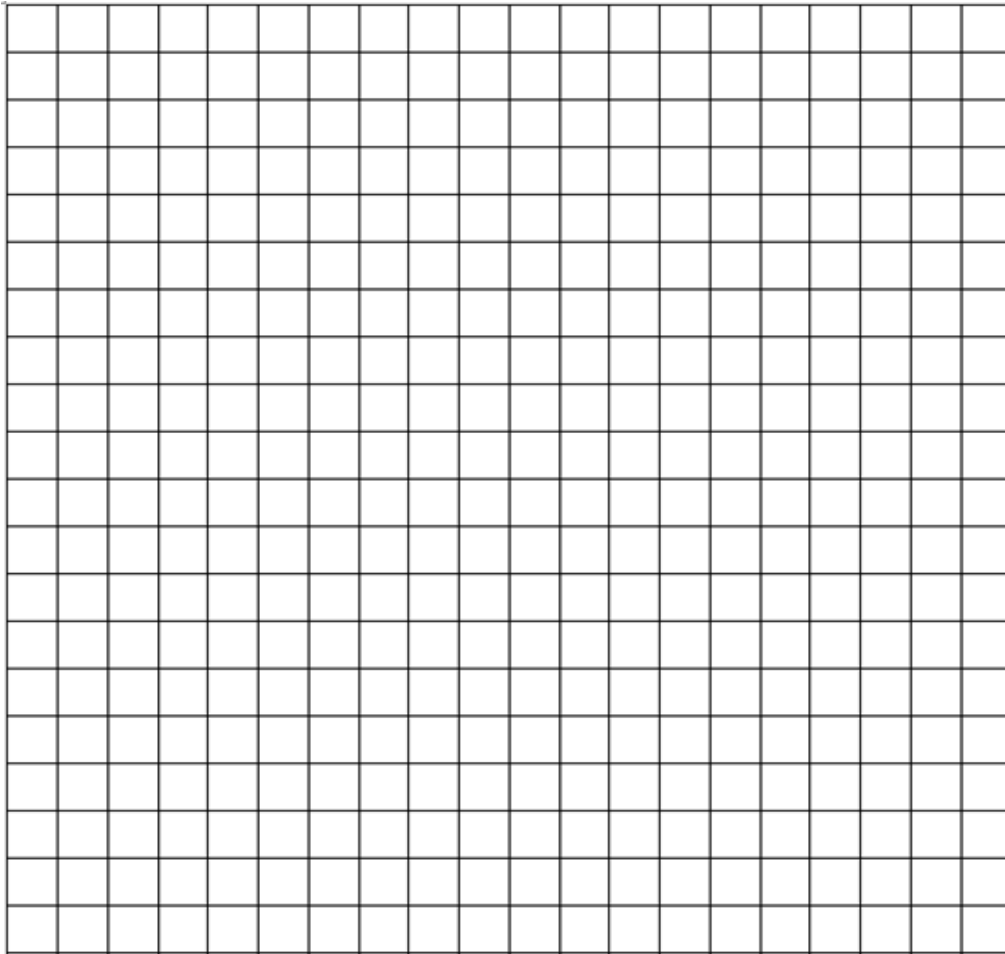
Example 1: Drawing the Coordinate Plane using a 1:1 Scale

Locate and label the points $\{(3,2), (8,4), (-3,8), (-2,-9), (0,6), (-1,-2), (10,-2)\}$ on the grid above.

Example 2: Drawing the Coordinate Plane Using an Increased Number Scale for One Axis

Draw a coordinate plane on the grid below, and then locate and label the following points:

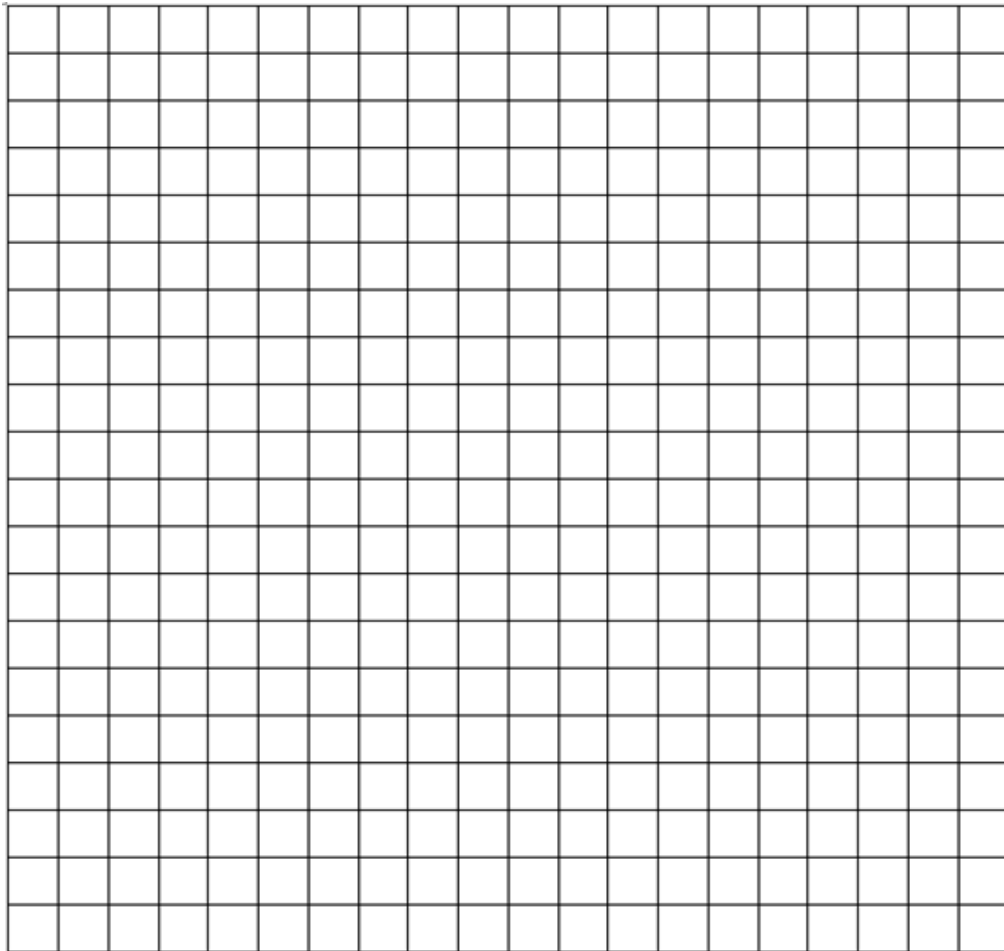
$$\{(-4, 20), (-3, 35), (1, -35), (6, 10), (9, -40)\}.$$



Example 3: Drawing the Coordinate Plane Using a Decreased Number Scale for One Axis

Draw a coordinate plane on the grid below, and then locate and label the following points:

$$\{(0.1, 4), (0.5, 7), (-0.7, -5), (-0.4, 3), (0.8, 1)\}.$$



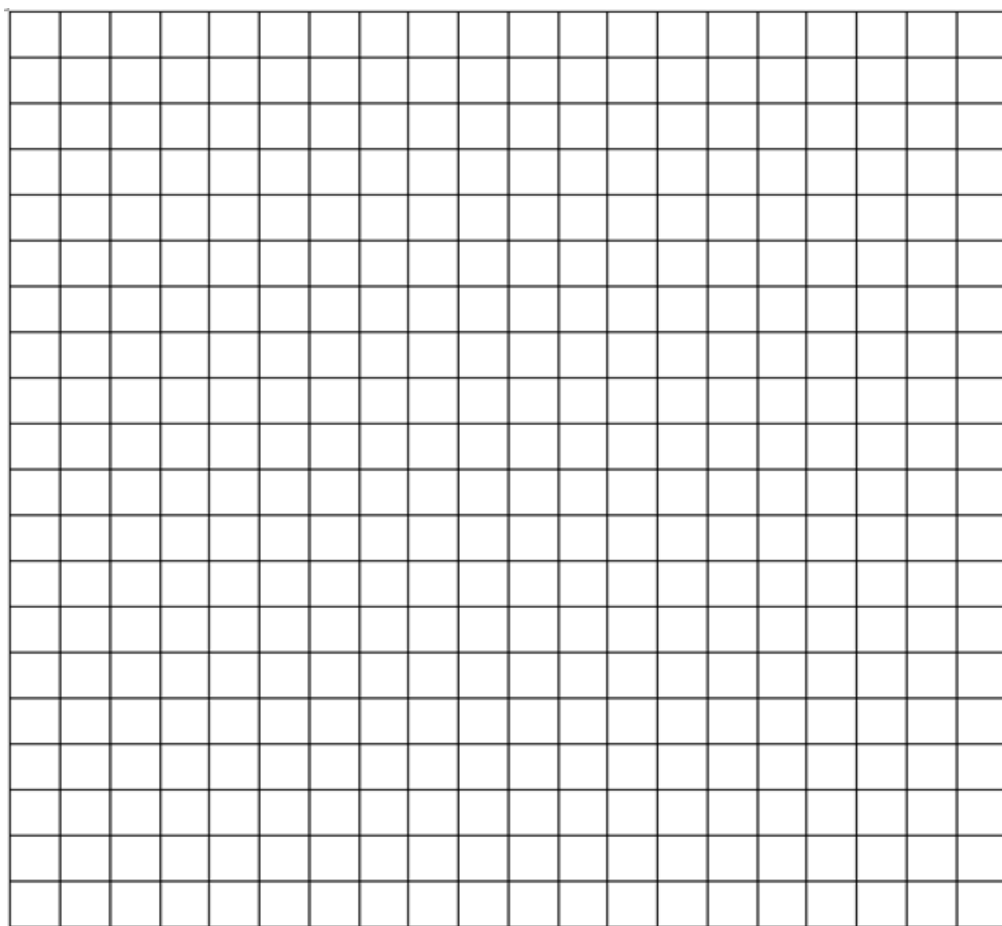
Example 4: Drawing the Coordinate Plane Using a Different Number Scale for Both Axes

Determine a scale for the x -axis that will allow all x -coordinates to be shown on your grid.

Determine a scale for the y -axis that will allow all y -coordinates to be shown on your grid.

Draw and label the coordinate plane then locate and label the set of points.

$$\{(-14, 2), (-4, -0.5), (6, -3.5), (14, 2.5), (0, 3.5), (-8, -4)\}.$$



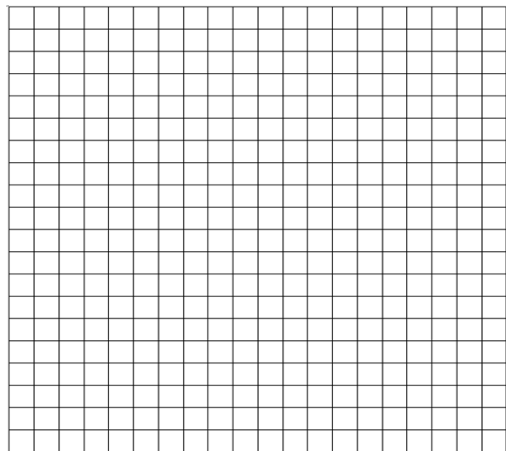
Lesson Summary

- The axes of the coordinate plane must be drawn using a straight edge and labeled x (horizontal axis) and y (vertical axis).
- Before assigning a scale to the axes it is important to assess the range of values found in a set of points, as well as the number of grid lines available. This will allow you to determine an appropriate scale so all points can be represented on the coordinate plane that you construct.

Problem Set

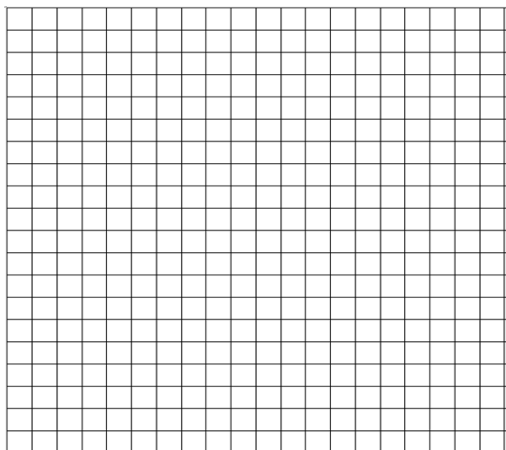
1. Label the coordinate plane, and then locate and label the set of points below.

$$\left\{ \begin{array}{l} (0.3, 0.9), (-0.1, 0.7), (-0.5, -0.1), \\ (-0.9, 0.3), (0, -0.4) \end{array} \right\}$$



2. Label the coordinate plane, and then locate and label the set of points below.

$$\left\{ \begin{array}{l} (90, 9), (-110, -11), (40, 4), \\ (-60, -6), (-80, -8) \end{array} \right\}$$



Extension:

3. Describe the pattern you see in the coordinates in question 2 and the pattern you see in the points. Are these patterns consistent for other points too?