Introduction to Coordinate Geometry

Coordinate Plane

Coordinate geometry involves locating and evaluating points on a **grid**. A grid is a system of lines arranged in two directions, vertical and horizontal. Two **number lines**, set perpendicular to one another, provide a way to specify locations on the grid. These number lines are called **axes**. The horizontal line is called the **x-axis**, and the vertical line is called the **y-axis**. The point where the axes meet is called the **origin**. The origin is the zero point on both axes. The axes divide the grid into four sections called **quadrants.** The quadrants are numbered from one to four: **quadrant 1**, **quadrant 2**, **quadrant 3**, and **quadrant 4**. The first quadrant is in the upper right corner. The other three quadrants are named in a counterclockwise direction with respect to quadrant 1. Together, the axes and quadrants are called a **coordinate plane**.

Coordinates

An **ordered pair** of numbers, written (x, y), is required to locate a point on the plane. The word "ordered" means that the order of the numbers matters. The first number, x, tells where the point is along the x-axis and is called the **x-coordinate**. The second number, y, tells where the point is along the y-axis and is called the **y-coordinate**. Together, these two numbers are called the **coordinates** of the point. The coordinates of the origin are (0, 0). In addition to locating a point already on the coordinate plane, you can **graph a point** or place it in its correct location on the coordinate plane. You must know the coordinates of a point to locate it or graph it on the coordinate plane.