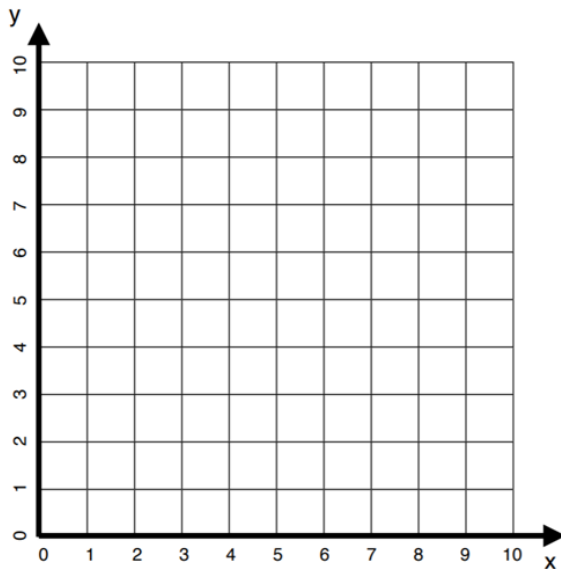


## Lesson 4.4 Polygons in the Coordinate Plane

**\*You will need to use coordinate planes for this lesson. I've provided graphs for the notes, but you'll want to use the "Blank Coordinate Grids PDF" from Google Classroom to use when doing the practice from your textbook.**

**Example 1: Drawing a Polygon in the Coordinate Plane**

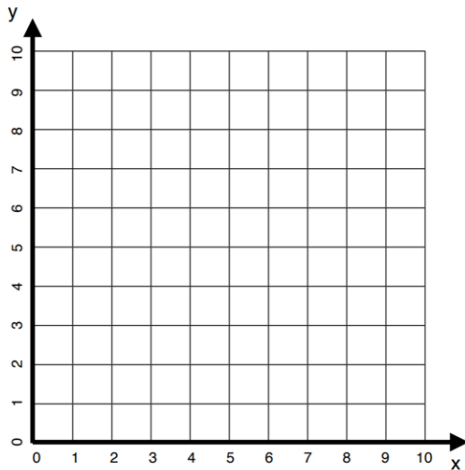
The vertices of a quadrilateral are  $A(2, 4)$ ,  $B(3, 9)$ ,  $C(7, 8)$ , and  $D(8, 1)$ . Draw the quadrilateral in a coordinate plane.



**Example 1: On Your Own**

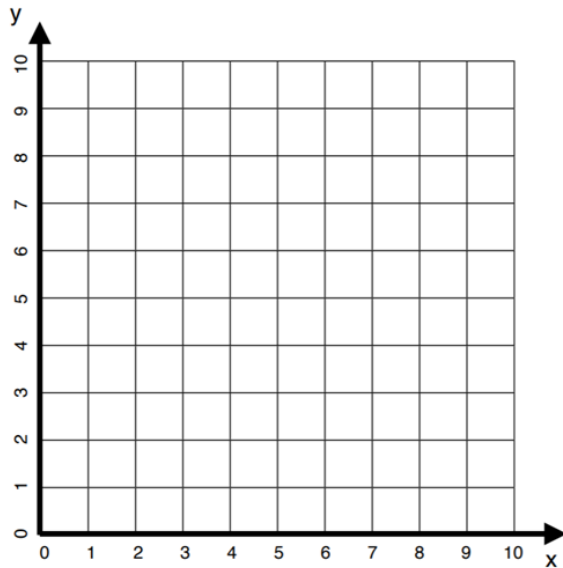
Draw the polygon with the given vertices in a coordinate plane.

4.  $P(1, 4)$ ,  $Q(3, 5)$ ,  $R(7, 3)$ ,  $S\left(6, \frac{1}{2}\right)$ ,  $T\left(2, \frac{1}{2}\right)$



**Example 2: Finding a Perimeter**

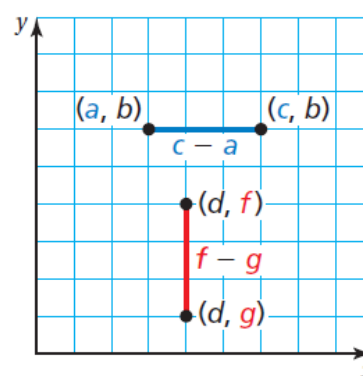
The vertices of a rectangle are  $F(1, 6)$ ,  $G(7, 6)$ ,  $H(7, 2)$ , and  $J(1, 2)$ . Draw the rectangle in a coordinate plane and find its perimeter.



 **Key Idea****Finding Distances in the First Quadrant**

You can find the length of a horizontal or vertical line segment in a coordinate plane by using the coordinates of the endpoints.

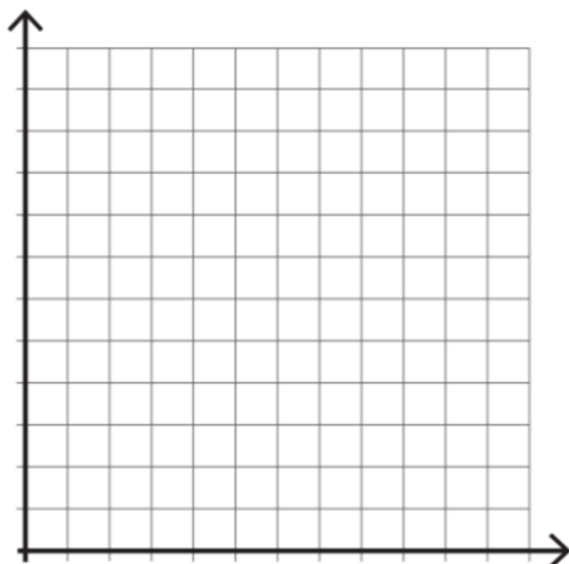
- When the  $x$ -coordinates are the same, the vertical distance between the points is the difference of the  $y$ -coordinates.
- When the  $y$ -coordinates are the same, the horizontal distance between the points is the difference of the  $x$ -coordinates.



Be sure to subtract the lesser coordinate from the greater coordinate.

**Example 3: Real-Life Example**

In a grid of the exhibits at a zoo, the vertices of the giraffe exhibit are  $E(0, 90)$ ,  $F(60, 90)$ ,  $G(100, 30)$ , and  $H(0, 30)$ . The coordinates are measured in feet. What is the area of the giraffe exhibit?



**Example 2: On Your Own**

5. The vertices of a rectangle are  $J(2, 7)$ ,  $K(4, 7)$ ,  $L(4, 1.5)$ , and  $M(2, 1.5)$ . Find the perimeter and the area of the rectangle.

