Polygons in the Coordinate Plane - Step-by-Step Lesson

If the points on the coordinate plane below are the three vertices of a rectangle;

What are the coordinates of the fourth vertex?

How do you know?

What are the length and width of the rectangle?

Find the area and perimeter of the rectangle?



Explanation:

We know that;

A positive number tells us to move right or up.

A negative number tells us to move left or down.

Step 1) First we will recognize the distance along the x- axis between the points (-5, 3) and (3,3). We know that -5 is I-5I or 5 units to the of 0 and 3 is I3I or 3 units to the right of zero. Then we will get that the two points are a total of 8 units apart along the x-axis.

Step 2) The absolute value of the position of y indicates the total distance that the y components are apart. |-3| + |3| = 6

So the length is 8 and the width is 6.



Name _____

Date _____

Step 3) The fourth vertex would be 8 units away on the x coordinate from point (-5, -3). 8 + -5 = 3. So the point would be at (3, -3).

Step 4) Area of the rectangle = I x w

$$= 8 \times 6 = 48 \text{ units}^2$$

Step 5) The perimeter of the rectangle = 2(I + w)

= 2(8 + 6) = 2 x 14= 28 units