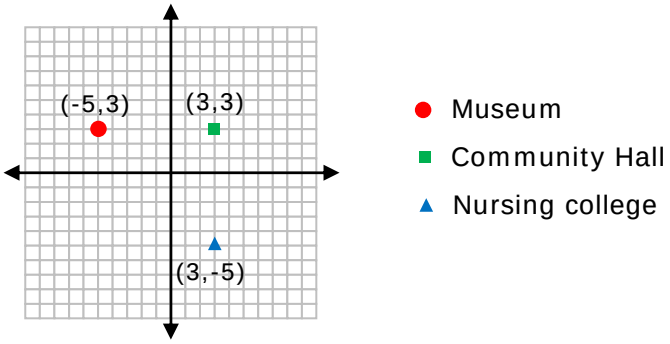
Name _____ Date _____

Polygons in the Coordinate Plane - Guided Lesson Explanation

Explanation#1

Step 1) Lets make a graph for our convenience.



a) The distance from the Museum to the Community Hall is 8 miles. The coordinate of these buildings have the same y coordinate. The distance between (|-5| + 3) x coordinate is 8 miles.

b) If you draw an imaginary line between the line points, it would be a triangle. The three locations form a triangle.

Area of triangle = 1/2 x b x h = 1/2 x 8 miles x 8 miles

= 32 miles^2

Explanation#2

We know that;

A positive number tells us to move right or up.

A negative number tells us to move left or down.

If the shape forms a rectangle the x and y coordinates of two other points will align with our point.

Step 1) First we will recognize the distance along the x- axis between the point (-5, 2) and (3,2). We know that -5 is l-5l or 5 units to the of 0 and 2 is l3l or 3 units to the right of zero. Then we will get the two points are total 8 units apart along the x-axis. The absolute value expression is l-5l + l3l.

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Step 2) We can find the y axis by finding the distance between points (-5, 2) and (-5, -2). It would be the distance between 2 and -2. That would equal |2| + |-2|

Step 3) The fourth vertex would be (3, -2).

So the length is 8 and the width is 4.

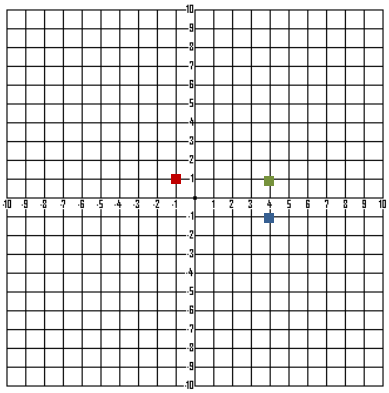
Step 4) Area of the rectangle = $l \times b$

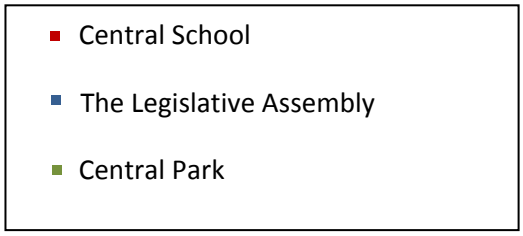
$= 8 \times 4 = 28 \text{ units}^2$

Step 5) The perimeter of a rectangle = $2(l + w) = 2(8 + 4)$

$= 2 \times 12 = 24$ units

Explanation#3 I made a graph for our convenience. You should too!





Step 2) The distance from the Central School to the Legislative Assembly is from (-1, 1) to (4, 1). They share the same y coordinate, so the difference in position between the x coordinates with tell us the distance.

|-1| + |4| = 5 5 miles

These buildings have the same y coordinate. The distance between the x coordinates is 5 miles.

Step 3) The three locations form a triangle. The height of the triangle would be 5 miles. The base of the triangle would be from the Legislative Assembly to Central park |-1| to 1 = 2 miles

Area of triangle = 1/2 x b x h = 1/2 x 5 x 2

$= 5 \text{ miles}^2$