

## Core Content

**Cluster Title: Solve real-world and mathematical problems involving area, surface area, and volume.**

**Standard 3:** Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.

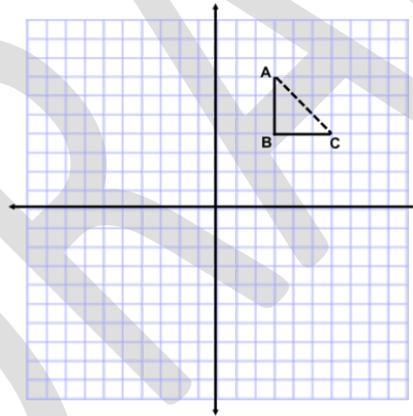
### MASTERY Patterns of Reasoning

#### Conceptual:

- Understand that a line segment from one coordinate pair to another represents a distance.
- Understand that if two coordinates have the same  $x$  or  $y$  value they are on the same line.
- The distance between two points on a coordinate plane is an absolute value.
- The units on a coordinate plane define the unit of distance measure.
- A coordinate plane can be used to represent real-world contexts (e.g., streets).

#### Procedural:

- Find the distance between two points.
- Find the length  $BA$  and  $BC$ .



#### Representational:

- Plot points in all four quadrants of the Cartesian Coordinate Plane.
- Plot a polygon in the Cartesian Coordinate Plane with given coordinates.

## Supports for Teachers



<ul style="list-style-type: none"> <li>• From the piece of pottery to the grinding stone.</li> </ul> <p>Ask the students to identify the polygon and to give its perimeter.</p> <p>Have the students create their own archeological digs and plot the points for at least four items that might be found in such a dig. Have them identify the polygon and give the length of each side of the polygon and the perimeter. Stress that the points connected must have the same first coordinate or the same second coordinate.</p> <p><b>Mathematical Task:</b> Nicole wants to landscape her yard with at least 4 trees located 15 meters apart, with two in the front yard and two in the back yard. Her yard is a rectangle with sides 40 meters by 50 meters. Use a coordinate grid to determine the placement of the trees. Give the coordinates of each tree as an ordered pair.</p>	
<b>Assessment Tasks Used</b>	
<p><b>Skill-based Task:</b> Plot ordered pairs to form a polygon. Determine one of the side lengths.</p> <p>Example: Plot the ordered pairs: A (2,6) B (2,2) C (-4,4). Find the side length AB.</p>	<p><b>Problem Task:</b> Given the coordinates A (2,5), B (-4,5), C (-4,1), and D (2,1) Jose says that the distance between A and D can be found by subtracting 2 from 5. Prove or disprove. Explain your answer with words, pictures, and equations.</p>