

Graphing Calculator Lab

Graphing Geometric Relationships

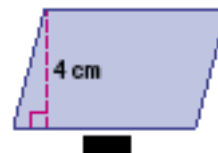
Main IDEA

Use technology to graph data in order to demonstrate geometric relationships.

In this lab, you will use a Casio CFX-9750G graphing calculator to analyze geometric relationships among the base, height, and area of several parallelograms.

ACTIVITY

- 1** **STEP 1** Draw five parallelograms that each have a height of 4 centimeters on centimeter grid paper.



- STEP 2** Copy and complete the table shown for each parallelogram.

Base (cm)	Height (cm)	Area (cm ²)
	4	
	4	
	4	
	4	
	4	

- STEP 3** Next enter the data into your graphing calculator. Press **MENU** 2 and enter the length of each base in L1. Then enter the area of each parallelogram in L2.

- STEP 4** Turn on the statistical plot by pressing **F1** **F6** **EXE**. Select the scatter plot and enter or confirm L1 as the Xlist and L2 as the Ylist.

- STEP 5** Graph the data by pressing **F1**. Use the Trace feature and the left and right arrow keys to move from one point to another.

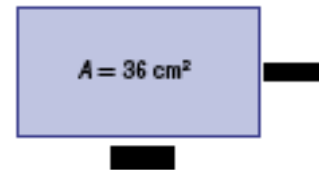
ANALYZE THE RESULTS

1. What does an ordered pair on your graph represent?
2. Sketch and describe the shape of the graph.
3. As the length of the base of the parallelogram increases, what happens to its area? Does this happen at a constant rate? How can you tell this from the table? from the graph?

ACTIVITY


2

STEP 1 Draw five rectangles that each have an area of 36 square centimeters on centimeter grid paper. The length should be greater than or equal to its width.



STEP 2 Copy and complete the table shown for each rectangle.

Length (cm)	Width (cm)	Area (cm ²)
		36
		36
		36
		36
		36

STEP 3 Clear list L1 and L2 by pressing **F6** **F4** **F1**  **F4** **F1**. Then enter the length of each rectangle in L1 and the width of each rectangle in L2.

STEP 4 Follow Steps 4 and 5 of Activity 1 to graph the data.

ANALYZE THE RESULTS

4. What does an ordered pair on your graph represent?
5. Sketch and describe the shape of the graph.
6. **MAKE A CONJECTURE** Write an equation for your graph. Use the calculator to graph and check your equation. What does this equation mean?
7. As the length of the rectangle increases, what happens to its width? Does this happen at a constant rate? How can you tell this from the table? from the graph?
8. **MAKE A PREDICTION** Draw five cubes with different edge lengths. Predict the shape of the graph of the relationship between the edge length and volume of the cube.
9. Create a table to record the edge length and volume of each cube. Then graph the data to show the relationship between the edge length and volume of the cube. Sketch and describe the shape of the graph.
10. **MAKE A CONJECTURE** Write an equation for your graph. Use the calculator to graph and check your equation. What does this equation mean?
11. As the length of the cube's edge increases, what happens to the volume?