5.3

Calculating the Area of a Triangle

You will need

- a geoboard and elastic bands
- centimetre square dot paper

GOAL

Explore the area of a triangle on a geoboard.

Explore the Math

Matthew and Susan are designing a triangular sign. The sign must have a base of 3 m. It must slide into a frame that is made of two parallel metal pieces, as shown.





Matthew and Susan want to explore what the area of the sign will be.

? How do the areas of possible triangular signs compare?

- **A.** Select two parallel line segments on your geoboard to represent the metal frame.
- **B.** Create a triangle that has a base of 3 units and will fit exactly between the top and bottom of the frame. Calculate the area of your triangle.
- **C.** Move the top vertex to other positions on the top of the frame. Calculate the area of each new triangle you create.
- D. Repeat steps A to C using the same base but a different height.
- E. Repeat steps A to C using the same height but a different base.
- **F.** Describe your observations. Draw diagrams on square dot paper to support your observations.

Reflecting

- 1. How is the area of a triangle related to its base and its height?
- 2. Which of your triangles had the easiest area to calculate? Why?
- 3. Why might you have expected the results you reported in steps B to E?

Communication Tip

In diagrams, arrows are used to show that line segments are parallel.