

PROBLEM SOLVING WORKSHOP
LESSON 9.5

Using **ALTERNATIVE METHODS**

TEKS **a.6, A.1.D,**
A.10.A

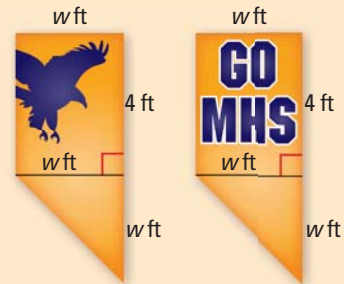


Another Way to Solve Example 5, page 585

MULTIPLE REPRESENTATIONS In Example 5 on page 585, you saw how to solve the problem about a school banner by solving an equation. You can also solve the problem using a table or a graph.

PROBLEM

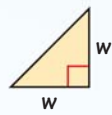
BANNER DIMENSIONS You are making banners to hang during school spirit week. Each banner requires 16.5 square feet of felt and will be cut as shown. Find the width of one banner.



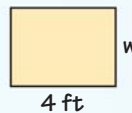
METHOD 1

Using a Table Consider the separate geometric figures that form one banner and find their areas in terms of w . Then find the total area of the banner for different values of w until you find a value that gives a total area of 16.5 square feet. Use a table to organize your work.

STEP 1 Write equations for the area of the pieces and the total area.



$$A = \frac{1}{2}w^2$$



$$A = 4w$$



$$A = \frac{1}{2}w^2 + 4w$$

STEP 2 Organize your work in a table.

w	Triangle's area $(\frac{1}{2}w^2)$	Rectangle's area $(4w)$	Total area $(\frac{1}{2}w^2 + 4w)$
1	0.5	4	4.5
2	2	8	10
3	4.5	12	16.5

← 4.5 < 16.5, so try a greater value of w .

← 10 < 16.5, so try a greater value of w .

← Correct area

► The width of the banner is 3 feet.