Using ALTERNATIVE METHODS

Another Way to Solve Example 1, page 28

TEKS *a.6*

MULTIPLE REPRESENTATIONS In Example 1 on page 28, you saw how to solve a problem about running using an equation. You can also solve the problem by using the strategy *draw a diagram*.
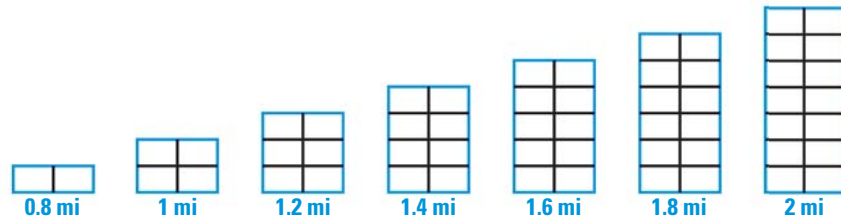
PROBLEM

RUNNING You run in a city where the short blocks on north-south streets are 0.1 mile long. The long blocks on east-west streets are 0.15 mile long. You will run 2 long blocks east, a number of short blocks south, 2 long blocks west, then back to your starting point. You want to run a total of 2 miles. How many short blocks should you run?

METHOD

Drawing a Diagram You can draw a diagram to solve the problem.

STEP 1 **Read** the problem carefully. It tells you the lengths of a short block and a long block. You plan to run 4 long blocks and a distance of 2 miles.

STEP 2 **Draw** a pair of rectangles to represent running 1 short block in each direction. The total distance is $4(0.15) + 2(0.1) = 0.8$ mile. Continue adding pairs of rectangles until the total distance run is 2 miles.

| 0.8 mi | 1 mi | 1.2 mi | 1.4 mi | 1.6 mi | 1.8 mi | 2 mi |

▶ You should run 14 short blocks.

Animated **Algebra** at classzone.com

PRACTICE

1. **BAKING** A cake pan is 9 inches wide and 11 inches long. How many 3 inch by 3 inch square pieces can you cut? Solve this problem using an equation. Then draw a diagram. *Explain* why a diagram is useful.

2. **SWIMMING** A 12 foot rope strung through 4 floats marks off the deep end of a pool. Each end of the rope is 3 feet from a float. The floats are equally spaced. How far apart are they? Solve this problem using two different methods.

3. **ERROR ANALYSIS** *Describe* and correct the error in solving Exercise 2.

$$4x + 6 = 12$$
$$4(1.5) + 6 = 12$$
The buoys are 1.5 feet apart.

4. **GEOMETRY** The length of a rectangle is twice its width. The perimeter is 72 inches. What is its length? Solve this problem using two different methods.