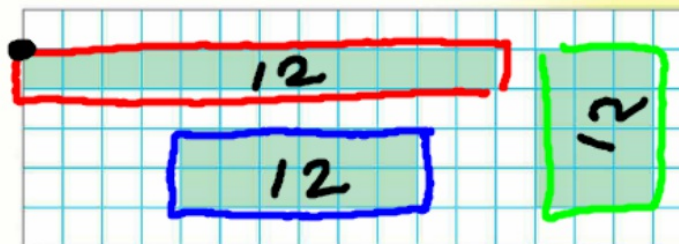represent 12 tiles.

Solve *How can you apply the strategy?*

A rectangle with dimensions of 12 and 1 has a perimeter of **26** .

A rectangle with dimensions of 3 and 4 has a perimeter of **14** .

A rectangle with dimensions of 2 and 6 has a perimeter of **16** .
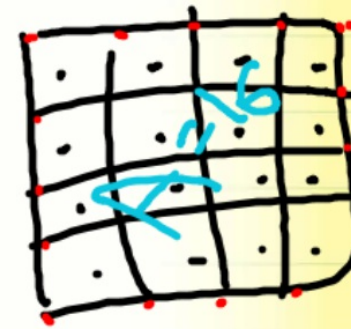
12

12

12

A rectangle with dimensions of 3 and 4 has a perimeter of __14__.

A rectangle with dimensions of 2 and 6 has a perimeter of __16__.

So, the least perimeter has dimensions of __3 and 4__.

P = 16

P = 16

Check *Does the answer make sense?*

Use addition to check your answer.

$3 + 4 + 3 + 4 = 14$ $2 + 6 + 2 + 6 = 16$ $12 + 1 + 12 + 1 = 26$

Analyze the Strategy Tutor

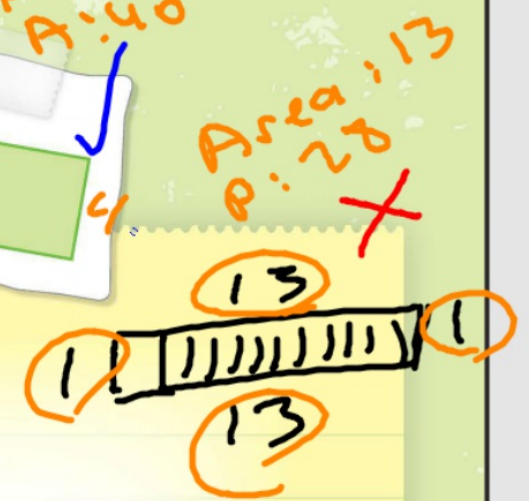**CCSS** **Identify Structure** Describe a design with a perimeter and an area of 16.
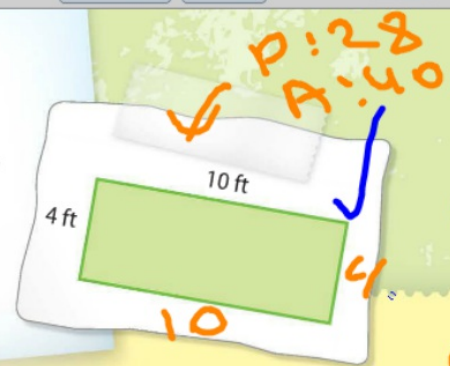
Sample answer: The designer would use 4 tiles in each of 4 rows to arrange the tiles, so the arrangement would be a square.

Case #2 Dynamic Dimensions

For a school assignment, Santiago has to give three different possibilities for the dimensions of a rectangle that has a perimeter of 28 feet and an area greater than 30 square feet. One of the diagrams he drew is shown at the right.

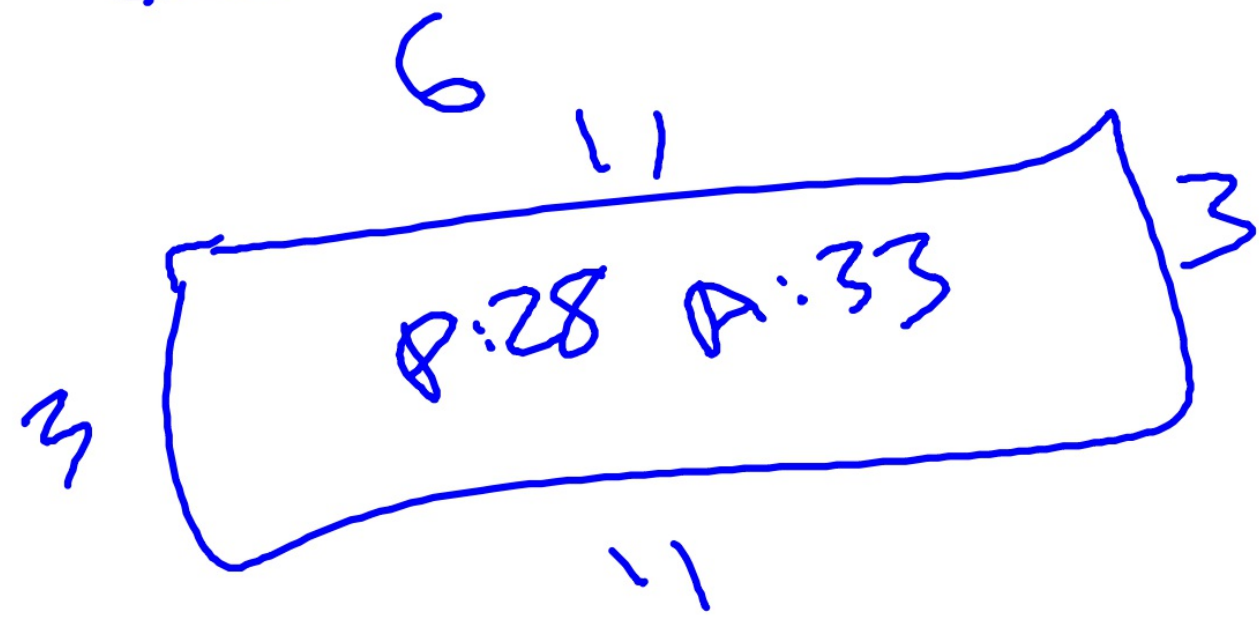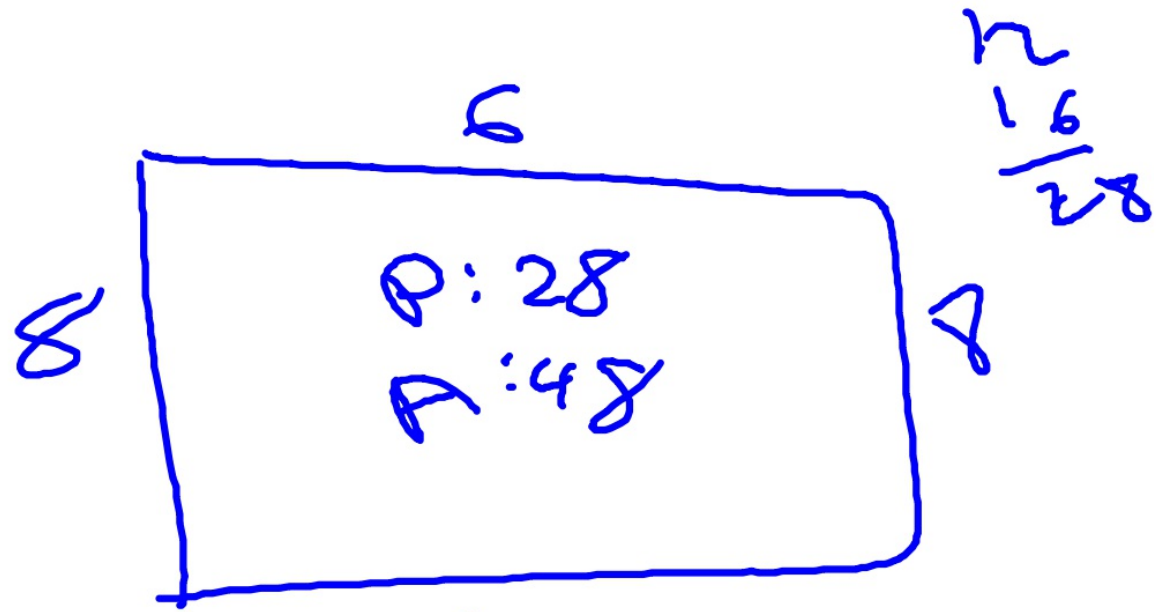What are two other possibilities for the dimensions of the rectangle?

10 ft

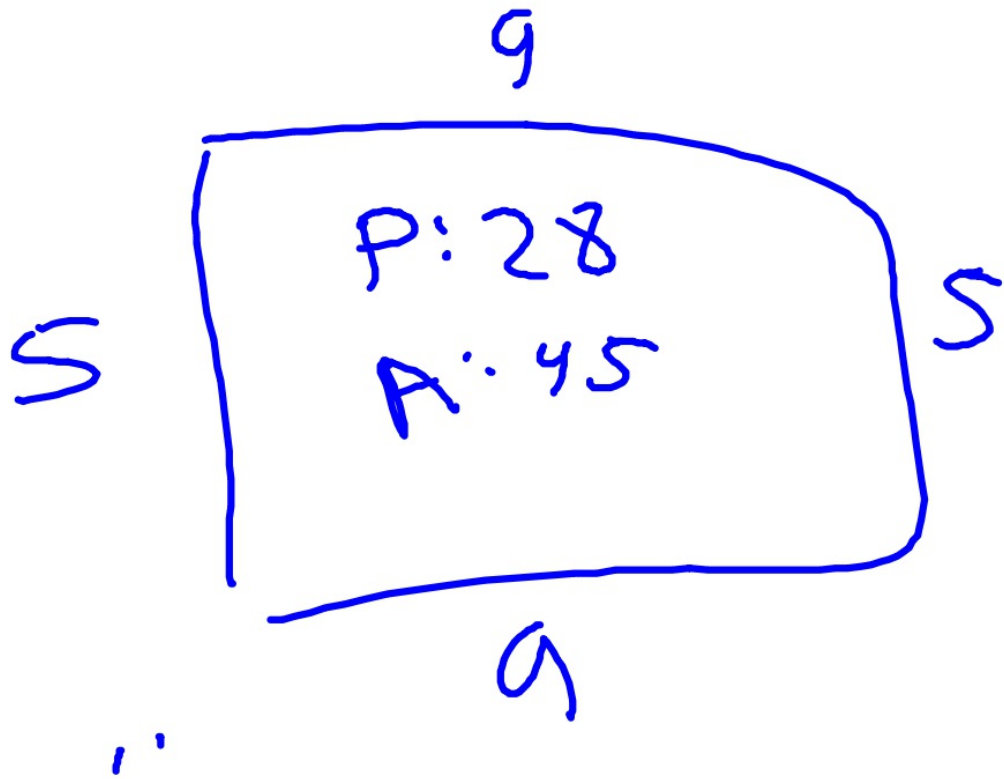4 ft

handwritten: P:28 A:40
handwritten: Area: 13 P: 28
handwritten: 4, 10
handwritten: 13, 1, 1, 13

Understand

Read the problem. What are you being asked to find?

I need to find **two possibilities for the dimensions of the rectangle**.

Underline key words and values in the problem. What information do you know?

The perimeter of the rectangle is **28** feet, and the area is greater than **30 ft²**

6

$\frac{16}{28}$

8   P: 28   8
          A: 48

6

11

3   P: 28   A: 33   3

11

9

S

P: 28

A: 45

S

9

2 Plan

Choose a problem-solving strategy.

I will use the **draw a diagram** strategy.

3 Solve

Use your problem-solving strategy to solve the problem.

Draw rectangles with perimeters of **28** feet.
Then, multiply length times width to find the area.
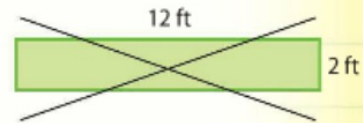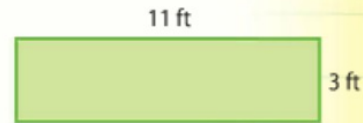
The product must be greater than **30**.

$3 + 3 + 11 + 11 = 28; 11 \times 3 = 33; 33 > 30; 12 + 12 + 2 + 2 = 28;$

$12 \times 2 = 24; 24 < 30; 6 + 6 + 8 + 8 = 28; 6 \times 8 = 48; 48 > 30$

So, the dimensions of two possible rectangles are

3 ft × 11 ft and 6 ft × 8 ft

11 ft

3 ft

12 ft

2 ft

8 ft

6 ft

4 Check

Use information from the problem to check your answer.

Reread the problem. Check that both conditions have been met.

Perimeter: **28** = 28   Area: **33** > 30 and **48** > 30

Case #3 Decorations

A rectangular table that is placed lengthwise against a wall is 8 feet long and 4 feet wide. Balloons will be attached 8 inches apart along the three exposed sides, with one balloon at each of the four corners.

How many balloons are needed?

25 balloons

Case #4 Geography

The mall is 15 miles from your home. Your school is one-half of the way from your home to the mall. The library is two-fifths of the way from your school to the mall.

How many miles is it from your home to the library?

10.5 mi

Case #5 Paint

Miller's Hardware store was having a sale on pints and gallons of paint. There were 107 people who bought pints of paint and 132 people who bought gallons of paint. 92 customers bought only pints. Some people bought both pints and gallons, and 48 customers did not buy any pints or gallons of paint.

How many customers shopped during the sale?

272 customers

Use any strategy!

Case #6 Geometry

Make a figure that contains three triangles, a parallelogram, and a trapezoid using 7 congruent line segments. Draw your figure at the right. **Sample answer shown.**