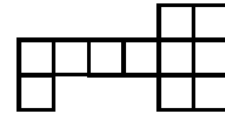


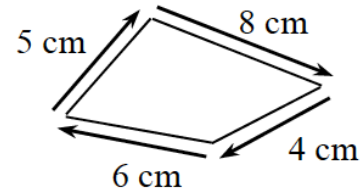
• **CPM Section 1.1.2, Perimeter and Area** Name: \_\_\_\_\_

The **perimeter** of a shape is the total length of the boundary (around the shape) that encloses the interior (inside) region on a flat surface. In the game, “Toothpicks and Tiles,” the number of tile side lengths (toothpicks) is the same as the **perimeter** of the shape. See the examples below.



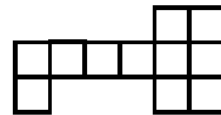
Perimeter = “toothpicks” = 20 units

The **area** is a measure of the number of square units needed to cover a region on a flat surface. In the game, the **area** is equal to the number of “tiles” in the shape.

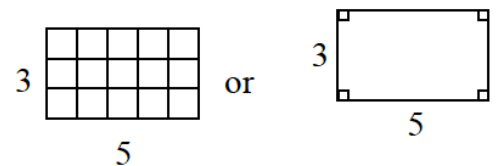


Perimeter =  $5 + 8 + 4 + 6 = 23$  cm

A **rectangle** is a quadrilateral (four sides) with four right angles. The opposite sides are equal in length. Two sides that come together (meet) at a right angle are referred to as the length and width, or base and height. The area ( $A$ ) of any rectangle is found by the relationship  $A = \text{length} \cdot \text{width}$ .



Area = “tiles” = 11 sq. units



Base = 5, Height = 3

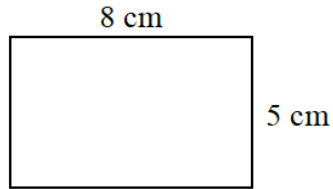
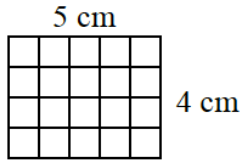
Area =  $5 \cdot 3 = 15$  square units

- **1-10.** Janelle wants to challenge you to a “Toothpick and Tiles” game. Using exactly four tiles, solve her challenges below. Justify your answers with pictures and labels.

1. Create a tile pattern where the number of toothpicks is exactly double the number of tiles.
2. Create a tile pattern where the number of toothpicks is more than double the number of tiles.

• 1-11

1. Find the area and perimeter of each of the figures below.



2.

3.

4. Now design your own shape with 5 square tiles. Record the perimeter and the area.

• **1-12.** Consider the first three figures of the pattern below.

•

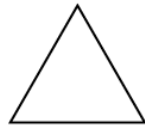


Figure 1



Figure 2

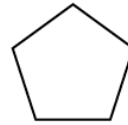


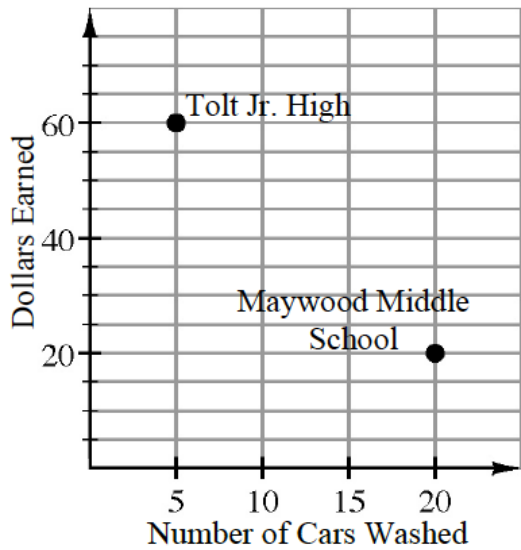
Figure 3

1. Draw what Figure 4 of this pattern should look like.

2. Using words, describe what Figures 5 and 6 should look like.

3. Using words, describe how the pattern is changing.

- **1-13.** Vi is trying to figure out how a square can be divided into four equal parts. Show her at least three different ways to divide a square into four equal parts.
- **1-14.** The band students at Tolt Jr. High and Maywood Middle School have been invited to participate in the Evergreen Music Festival in Seattle. Each group has decided to have a car wash to raise money to pay for the trip. Use the graph below to answer the following questions.



1. Which school washed more cars? How do you know?
2. Which school has raised the most money so far? How do you know?
3. **Additional Challenge:** Find how much each school is charging to wash a car. Show your work to justify your answer.