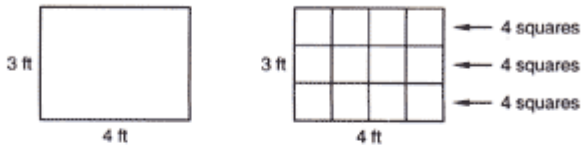
# LESSON 17 Areas of Rectangles

**Area** is the amount of surface of a figure. The diagram on the left represents a surface that is 4 feet long and 3 feet wide. On the right we show how this surface can be divided into twelve squares. All the sides of the squares are 1 foot long.

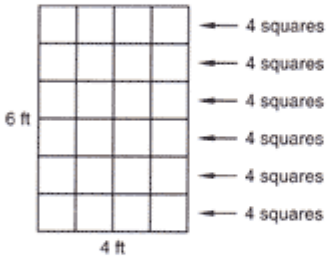



There are four squares in each row and three rows, so there are twelve squares.

$$4 \text{ squares} \times 3 = 12 \text{ squares}$$

Therefore, twelve 1-foot squares cover the surface.

If there were six rows of four squares each, then there would be a total of twenty-four squares.



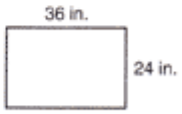

$$6 \text{ rows} \times 4 \frac{\text{squares}}{\text{row}} = 24 \text{ squares}$$

The length of the first column tells us the number of rows and the width tells us the number of squares in each row. Thus,

$$\text{Number of squares} = \text{length} \times \text{width}$$

Each square could be covered by a tile that is 1 foot long on each side. It is helpful to think of tiles when we hear the word *area*. Tiles can be touched and manipulated and are easily understood, while area is more abstract.

**example 17.1** How many 1-inch-square tiles would it take to cover this figure?




*solution* Each row will have 36 tiles, and there will be 24 rows. Now we multiply.

$$36 \frac{\text{tiles}}{\text{row}} \times 24 \text{ rows} = \mathbf{864 \text{ tiles}}$$

From this we see that the area of a rectangle equals the length times the width.

**Area of a rectangle = length × width**