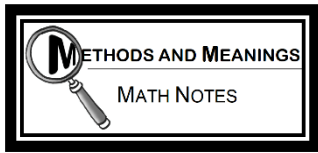


2.2.2 How can I measure with square units?

Square Units and Area of Rectangles



Area, Rectangles and Square Units

The **area** of a region is the number of square units of the interior of a region.

To measure the area of a region, be sure to remember these important points:

- Any square can be used as a unit of area—(ex: a square inch)
- To determine the area of a region, count the number of square units that are needed to cover the region completely without gaps or overlaps.
- When the answer is stated, be sure to include the kind of square units that are being used. (ex: 14 cm^2)

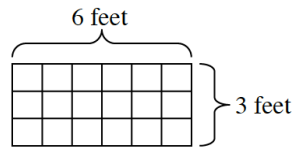
To find the **area of a rectangle**, determine how many square units are needed to cover the rectangle exactly with no overlaps.

- In the rectangle at right, it takes 18 squares to cover the rectangle. Therefore, the area of the rectangle is 18 square feet.
- The area of the rectangle at right can also be computed using:

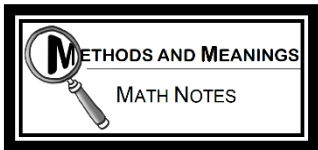
$$A = (\text{length})(\text{width})$$

$$A = (6)(3)$$

$$A = 18 \text{ ft}^2$$



Units for area can be abbreviated using symbols. The area 18 square feet is abbreviated 18 sq. ft. or 18 ft^2 . The area 2 square yards is abbreviated 2 sq yd or 2 yd^2 .



Generic Rectangles

It is often helpful to use an area model or generic rectangle to represent multiplication.

Example: The image to the right shows the problem 67×46

1. Use these numbers as the dimensions of a large rectangle, as shown at right.
2. Determine the area of each of the smaller rectangles.
3. The solution is the sum of the four smaller areas.

$$67 \cdot 46 = 2400 + 280 + 360 + 42 = \mathbf{3082}$$

	60	+ 7
40	2400	280
+ 6	360	42