

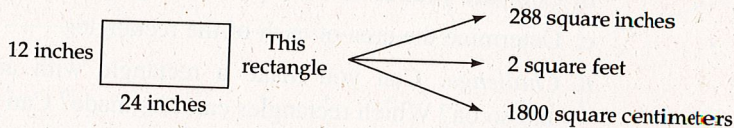
## EXPLORATION 10.6 Exploring the Meaning of Area

### What Does Area Mean?

1. Let us begin by exploring what area means—not how we determine it, but what it means. Imagine that someone from another planet came to visit and that when you made a comment like “The area of this figure is greater than the area of that figure,” the extraterrestrial asked you what *area* means. How would you respond? Write your response and then compare responses with your partner(s).

### What Does the Number Mean?

2. Consider a rectangle whose dimensions are 12 inches by 24 inches. We might say that the area is 288 square inches, or, if we used feet as our unit of measurement, we might say that the area is 2 square feet. If we were in a country that used the metric system of measurement, we would determine the length and width to be approximately 60 centimeters and 30 centimeters, and we would say that the area is 1800 square centimeters. From this perspective, there is not a functional relationship between an object and the number used to denote its area, unless you specify the unit of measurement.



Thus we need to look at the numbers and what the numbers mean. For example, suppose you have heard that the floor space of the student center is 10,000 square feet. What does that number mean? Write your thoughts and then share them with your partner(s).

3. Now let us explore the meaning of numbers in measurement. Mikala has a problem:  
The area of her lawn is 1200 square feet. She wants to spread fertilizer over the lawn, but the bag of fertilizer says that one bag will cover 100 square yards. How many bags of fertilizer should she buy?
  - a. Think about this problem—what you know about feet and yards, and the tools you have for problem-solving (such as Polya’s four steps on the inside front cover of the *Explorations* manual). Write down your initial thoughts and hypotheses, including an estimate if you feel you can make one.
  - b. Meet with your partner(s). Select one or more ideas to pursue and then pursue them.
4. After the class discussion, write your second-draft response to the question asked in Step 2. When you see a measurement (for example, 20,000 square feet), what does that number mean?