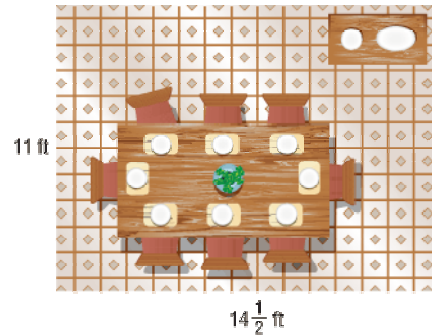


## Lesson 2-5

## Problem

**HOME IMPROVEMENT** In her dining room, Mrs. Sanchez plans to put up a wallpaper border along the top edge of all the walls and also to have hardwood flooring installed.

- How many feet of the border should Mrs. Sanchez buy?
- The flooring that she has selected costs \$7.75 per square foot and is sold by the square foot. How much will it cost her for the wood floor for this room, not including installation and sales tax?



## Solution

- To find the amount of border needed, find the room's perimeter.

$$P = 2\ell + 2w \quad \text{Use the perimeter formula for a rectangle.}$$

$$P = 2\left(14\frac{1}{2}\right) + 2(11) \quad \ell = 14\frac{1}{2}, w = 11$$

$$P = 29 + 22$$

$$P = 51$$

Mrs. Sanchez will need a total of 51 ft of the wallpaper border.

- To find the cost of the flooring, first find the area of the room.

$$A = \ell \cdot w \quad \text{Use the area formula for a rectangle.}$$

$$A = 14\frac{1}{2} \cdot 11$$

$$A = 159\frac{1}{2}$$

Since hardwood flooring is sold by the square foot, she should order  $160 \text{ ft}^2$ . Then, multiply 160 by the cost of the flooring per square foot.

$$160 \cdot 7.75 = 1240$$

The total cost of hardwood flooring for the dining room, not including installation and sales tax, is \$1240.