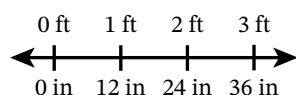


FAMILY MATH

Problem Solving with Measurement

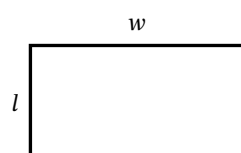
Dear Family,

Your student is learning to convert customary length measurements of yards, feet, and inches. They convert length measurements from larger units to smaller units. They learn there is a multiplicative relationship between units, such as 1 foot is 12 times as long as 1 inch. Your student applies these conversions to solve word problems involving area and perimeter. They use their experience with finding the perimeters of rectangles in grade 3 to identify formulas for perimeter. In these problems, your student solves for the perimeter, the area, or the unknown side lengths of rectangles.



Feet	Inches
1	12
2	24
3	36

Students represent conversions by drawing a number line and a table.

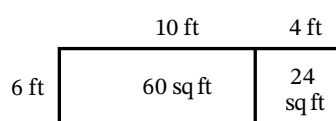


$$P = l + w + l + w$$

$$P = 2l + 2w$$

$$P = 2 \times (l + w)$$

Students identify different formulas for finding the perimeters of rectangles.



$$6 \times l = 84$$

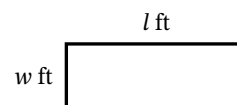
$$l = 14 \text{ feet}$$

The length of the trailer is 14 feet.

In problems where the area and the length of 1 side are known, students may represent the area with an area model. They determine the length of the unknown side by using division.

$$\text{Area} = 44 \text{ square feet}$$

$$\text{Perimeter} = 30 \text{ feet}$$



$$2 \times (l + w) = 30$$

$$30 \div 2 = 15$$

$$15 = 11 + 4$$

$$11 \times 4 = 44$$

In some cases, students may know the area and the perimeter, and they then determine the dimensions of the rectangle.

At-Home Activities

Perimeter and Area with Mixed Units

Ask your student to identify a large rectangular object in your home, such as a door, window, rug, or part of a tile floor. Work together to measure the length and the width of the object in feet and inches. Help your student calculate the perimeter of the object. Then calculate the area. Talk together about how perimeter is measured in units, such as feet or inches, while area is measured in square units, such as square feet or square inches.

Compare the perimeters and areas of different objects that you measured together. Ask the following questions to guide their thinking.

- “Which objects have larger perimeters? Which objects have larger areas?”
- “Do any objects have the same perimeter but different areas?”
- “Do any objects have the same area but different perimeters?”
- “Why might we need to know the perimeter or area of any of the objects you measured?”

Yards, Feet, or Inches?

Look for opportunities where you may need to measure the length of an object. Discuss with your student whether it makes sense to measure the object by using yards, feet, or inches. Often, objects may be measured in inches but measuring in feet can be more efficient. Sometimes, objects may require combined units, such as feet and inches. These observations and discussions strengthen your student’s understanding of the relative size of each measurement unit.