Lesson 12: Ratios of Fractions and Their Unit Rates

Classwork

During this lesson, you are remodeling a room at your house and need to figure out if you have enough money. You will work individually and with a partner to make a plan of what is needed to solve the problem. After your plan is complete, then you will solve the problem by determining if you have enough money.

Example 1: Time to Remodel

You have decided to remodel your bathroom and install a tile floor. The bathroom is in the shape of a rectangle and the floor measures 14 feet, 8 inches long by 5 feet, 6 inches wide. The tiles you want to use cost \$5 each, and each tile covers $4\frac{2}{3}$ square feet. If you have \$100 to spend, do you have enough money to complete the project?

Make a Plan: Complete the chart to identify the necessary steps in the plan and find a solution.

What I Know	What I Want to Find	How to Find it

Compare your plan with a partner. Using your plans, work together to determine how much money you will need to complete the project and if you have enough money.

Exercises

Which car can travel further on 1 gallon of gas?

Blue Car: travels $18\frac{2}{5}$ miles using 0.8 gallons of gas

Red Car: travels $17\frac{2}{5}$ miles using 0.75 gallons of gas

Problem Set

1. You are getting ready for a family vacation. You decide to download as many movies as possible before leaving for the road trip. If each movie takes $1\frac{2}{5}$ hours to download and you downloaded for $5\frac{1}{4}$ hours, how many movies did you download?

2. The area of a blackboard is $1\frac{1}{3}$ square yards. A poster's area is $\frac{8}{9}$ square yards. Find the unit rate and explain, in words, what the unit rate means in the context of this problem. Is there more than one unit rate that can be calculated? How do you know?

3. A toy jeep is $12\frac{1}{2}$ inches long while an actual jeep measures $18\frac{3}{4}$ feet long. What is the value of the ratio of the length of the toy jeep to length of the actual jeep? What does the ratio mean in this situation?

4. $\frac{1}{3}$ cup of flour is used to make 5 dinner rolls.
   a. How much flour is needed to make one dinner roll?
   b. How many cups of flour are needed to make 3 dozen dinner rolls?
   c. How many rolls can you make with $5\frac{2}{3}$ cups of flour?