EUREKA MATH™ TIPS FOR PARENTS

KEY CONCEPT OVERVIEW

Welcome to Grade 6 and *A Story of Ratios*™! In the first topic of Module 1, students will become familiar with **ratio** language (how to describe ratios) and notation (how to write ratios, e.g., 3:2 or 7 to 15). They will learn how to identify **equivalent ratios** (e.g., 1:2, 2:4, and 4:8) and to solve problems with ratio values.

You can expect to see homework that asks your child to do the following:

- Write ratios using correct ratio notation.

- Describe the **ratio relationship**.

- Write and identify equivalent ratios. (Students may use a **tape diagram**.)

- Define and determine the **value of the ratio** to determine whether ratios are equivalent.

- Solve word problems involving ratios.

SAMPLE PROBLEM   *(From Lesson 5)*

In the month of August, a total of 192 registrations were purchased for passenger cars and pickup trucks at the local Department of Motor Vehicles (DMV). The DMV reported that in the month of August, for every 5 passenger cars registered, there were 7 pickup trucks registered. How many of each type of vehicle were registered in the county in the month of August?

1. Using the information in the problem, write any two ratios and describe the meaning of each.

   The ratio of cars to trucks is 5:7 and is a part-to-part ratio. The ratio of trucks to total vehicles is 7 to 12 and is a part-to-whole ratio.

2. Make a tape diagram that represents the quantities in the part-to-part ratio that you wrote.

   Passenger Cars

   Pickup Trucks
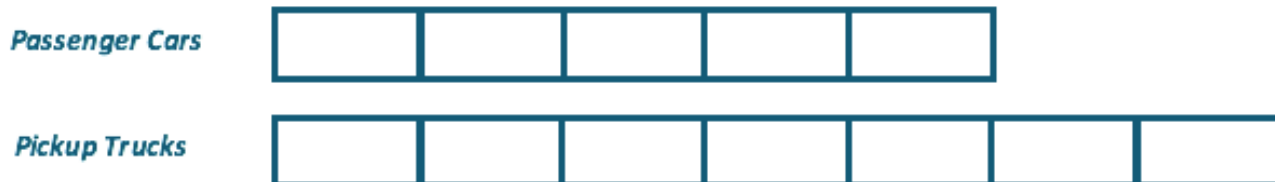
3. What value does each individual part of the tape diagram represent?

   Divide the total quantity into 12 equal-sized parts:
   $$\frac{192}{12} = 16$$

4. How many of each type of vehicle were registered in August?

   5 × 16 = 80 There were 80 passenger cars registered in August.

   7 × 16 = 112 There were 112 pickup trucks registered in August.

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at GreatMinds.org.

HOW YOU CAN HELP AT HOME

- Determine and write the ratio for the number of cups of flour to the number of cups of sugar in a recipe that calls for 3 cups of flour and 1 cup of sugar. Use the ratio to determine the number of cups of flour needed if someone makes multiple batches using 6 cups of sugar (18). Ask your child to explain how to use a tape diagram to solve this problem.

- Have your child make ratio cards by writing ratios (e.g., 2:5) on notecards or flashcards (one ratio per card). Show the cards one at a time, and ask your child to generate three equivalent ratios for each card (e.g., 4:10, 14:35, 20:50). For an added challenge, ask your child what the **nonzero number c** is for each set of equivalent ratios (2, 7, 10).

TERMS

Equivalent ratios: Ratios that have the same value; for example, 1:3, 2:6, and 3:9 are equivalent ratios.

Multiplicative comparisons: Comparisons that decribe the relationship between two quantities in terms of multiples; for example, "'twice as many apples as oranges" or "three times as many cats as chipmunks" are multiplicative comparisons.

Nonzero number c: The number that is multiplied by each part of the ratio to make an equivalent ratio.

Quantities: Amounts, or measurements, such as length, area, volume, and speed.

Quotient: The answer to a division problem.

Ratio: A statement of how two (nonzero) numbers compare. They can be written as $A{:}B$ or A to B.

Ratio relationship: The relationship between two quantities in a given setting; for example, sugar to butter in a recipe or paws to tails in the monkey house at the zoo. It is also the set of all ratios that are the same (equivalent). A ratio of 1:4, for example, can be used to describe ratio relationships (1:4, 2:8, 3:12) and can be represented by various models (ratio tables, double number line diagrams, and by equations and their graphs) as shown in the Models section.

Value of the ratio: For the ratio $A{:}B,$ the value of the ratio is the quotient $\frac{A}{B}$ where $B \neq 0$. For example, the ratio 6:10 has a value of $\frac{6}{10}$ or 0.6.

MODELS

Tape Diagram

2: 3, 4: 6, 6: 9

Cups of Sugar

Cups of Flour