Lesson 7 Reteach

Ratio and Rate Problems

You can solve rate and ratio problems by using a bar diagram or by using a unit rate.

Example 1

NUTRITION Three servings of broccoli contain 150 Calories. How many Calories will 5 servings contain?

Method 1   Use a bar diagram.

| 50 | 50 | 50 | 150 Calories

Draw a bar diagram to represent the situation.

| 50 | 50 | 50 | 50 | 50 | ? Calories

Each section represents 150 ÷ 3, or 50 Calories.

So, 5 servings of broccoli contain 250 Calories.

Method 2   Use a unit rate.

Step 1   Find the unit rate. $\dfrac{150 \text{ Calories}}{3 \text{ servings}} = \dfrac{\blacksquare \text{ Calories}}{1 \text{ serving}}$ $\dfrac{150 \text{ Calories}}{3 \text{ servings}} = \dfrac{50 \text{ Calories}}{1 \text{ serving}}$

$\div 3$ $\div 3$

Step 2   Multiply. $\dfrac{50 \text{ Calories}}{1 \text{ serving}} \times 5 \text{ servings} = 250 \text{ Calories}$

You can also solve ratio and rate problems by using equivalent fractions.

Example 2

SURVEY In one survey, three out of five students agreed that the school needs a new cafeteria. Predict how many of the 600 students in the school would agree that the school needs a new cafeteria.

agree → $\dfrac{3}{5} = \dfrac{\blacksquare}{600}$ ← agree   Write a ratio comparing the number of students
total → $\phantom{\dfrac{3}{5}}$ ← total   who agree to the total number of students.

$\times 120$

$\dfrac{3}{5} = \dfrac{360}{600}$ Since 5 × 120 = 600, multiply 3 by 120.

$\times 120$

So, 360 students would agree that the school needs a new cafeteria.

Exercises

Solve.

1. **MUSIC** Jeremy spent $33 on 3 CDs. At this rate, how much would 5 CDs cost?

2. **AQUARIUM** At an aquarium, 6 out of 18 deliveries are plants. Out of 15 deliveries in one week, how many are plants?

3. **ELECTIONS** Three out of four students surveyed in a school said they will vote for Nuncio for class president. Predict how many of the 340 students in the school would vote for Nuncio.