A ratio is a comparison of two quantities by division. It can be written in several ways:

$$\frac{65 \text{ miles}}{1 \text{ hour}} \text{ , } 65 \text{ miles: 1 hour, or 65 miles to 1 hour}$$

For additional information see the Math Notes box in Lesson 4.2.4 of the *Core Connections, Course 1* text.

Example

A bag contains the following marbles: 7 clear, 8 red and 5 blue. The following ratios may be stated:

a. Ratio of blue to total number of marbles $\Rightarrow \frac{5}{20} = \frac{1}{4}$.

b. Ratio of red to clear $\Rightarrow \frac{8}{7}$.

c. Ratio of red to blue $\Rightarrow \frac{8}{5}$.

d. Ratio of blue to red $\Rightarrow \frac{5}{8}$.

Problems

1. Molly's favorite juice drink is made by mixing 3 cups of apple juice, 5 cups of cranberry juice, and 2 cups of ginger ale. State the following ratios:

    a. Ratio of cranberry juice to apple juice.

    b. Ratio of ginger ale to apple juice.

    c. Ratio of ginger ale to finished juice drink (the mixture).

2. A 40-passenger bus is carrying 20 girls, 16 boys, and 2 teachers on a field trip to the state capital. State the following ratios:

    a. Ratio of girls to boys.   b. Ratio of boys to girls.

    c. Ratio of teachers to students.   d. Ratio of teachers to passengers.

3. It is important for Molly (from problem one) to keep the ratios the same when she mixes larger or smaller amounts of the drink. Otherwise, the drink does not taste right. If she needs a total of 30 cups of juice drink, how many cups of each liquid should be used?

4. If Molly (from problem one) needs 25 cups of juice drink, how many cups of each liquid should be used? Remember that the ratios must stay the same.

Answers

1. a. $\frac{5}{3}$ b. $\frac{2}{3}$ c. $\frac{2}{10} = \frac{1}{5}$ 2. a. $\frac{20}{16} = \frac{5}{4}$ b. $\frac{16}{20} = \frac{4}{5}$ c. $\frac{2}{36}$ d. $\frac{2}{38}$

3. 9 c. apple, 15 c. cranberry, 6 c. ginger ale   4. $7\frac{1}{2}$ c. apple, $12\frac{1}{2}$ c. cranberry, 5 c. ginger ale

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