

Section 6.1 Ratios

1. Definition of a Ratio: The ratio of two numbers is a fraction, where the first number in the ratio is the numerator and the second number in the ratio is the denominator. In symbols:

The ratio of a to b is $\frac{a}{b}$ where $b \neq 0$.

Example 1: Express the ratio of 16 to 48 as a fraction in lowest terms.

Example 2: Express the ratio of $\frac{2}{3}$ to $\frac{4}{9}$ as a fraction in lowest terms.

Example 3: Express the ratio of 0.08 to 0.12 as a fraction in lowest terms.

2. Applied Problems: In an applied problem, you may be asked to find the ratio of one quantity to a second quantity. The first quantity becomes the numerator of the fraction, and the second quantity becomes the denominator. Reduce the fraction to lowest terms.

Example 4: One cup of breakfast cereal contains 21 grams of carbohydrates and 2 grams of protein. Find the ratio of carbohydrates to protein.

Practice Problems

- a. Express the ratio of 18 to 27 as a fraction in lowest terms.
- b. Express the ratio of $\frac{6}{7}$ to $\frac{12}{21}$ as a fraction in lowest terms.
- c. Express the ratio of 0.15 to 0.25 as a fraction in lowest terms
- d. One cup of breakfast cereal contains 32 grams of carbohydrates and 3 grams of protein. Find the ratio of carbohydrates to protein.

Answers to Practice Problems

- a. $\frac{2}{3}$; b. $\frac{3}{2}$; c. $\frac{3}{5}$; d. $\frac{32}{3}$