# Resource **Ratios and Fractions**

## Language of ratios and fractions

A **ratio** is a comparison of two numbers using division. Ratios can be written using words, such as the ratio of men to women in class is 2 to 4. This ratio explains that there are two men for every four women in the class.

The ratio can also be expressed using a colon as shown here:

$$\text{men:women} = 2:4$$

And as a fraction:

$$\frac{\text{men}}{\text{women}} = \frac{2}{4}$$

Notice that men are shown at the top of the fraction (the numerator) because they were mentioned first in the comparison. Women are in the bottom of the fraction (the denominator) because they were mentioned second. The ratio can also be simplified:

$$\frac{\text{men}}{\text{women}} = \frac{2}{4} \text{ simplifies to } \frac{1}{2}$$

Caution: This does not mean that half the class is made up of men! It means that there is one man for every two women.

**Example 1:** What is the ratio of men to the entire class?

To answer the question, think about the class as having 2 men and 4 women. This means there are 6 people in the class, and that two out of the six people are men:

$$\frac{\text{men}}{\text{total}} = \frac{2}{6} = \frac{1}{3} \text{ which indicates that the class is } \frac{1}{3} \text{ men}$$

This example shows how important it is to include the context along with the mathematics (See Resource **Writing Principles**, Writing Principle #2).

**Example 2:** What is the ratio of women to men in the class? What fraction of the class are women? What percent of the class are women?

The ratio of women to men is: $\frac{\text{women}}{\text{men}} = \frac{4}{2} = \frac{2}{1}$, and the ratio of women to the total number of students is: $\frac{\text{women}}{\text{total}} = \frac{4}{6} = \frac{2}{3} \approx 0.667$. So, $\frac{2}{3}$ of the class is made up of women, which is about 66.7%.