A ratio is a comparison between two numbers. A ratio can be written in three ways.

\[ \frac{3}{4} \quad \text{or} \quad 3:4 \quad \text{or} \quad 3 \text{ to } 4 \]

The order of the numbers in a ratio is important. The first number being compared comes first in the ratio. When a ratio is expressed as a fraction, the first number appears as the numerator and the second number appears as the denominator.

To simplify a ratio, divide both numbers by the greatest common factor (GCF).

**Example 1**

What is the ratio of squares to circles? Describe the ratio in words.

There are 4 squares. There are 3 circles.
Describe the ratio with squares first.

The ratio of squares to circles is 4 to 3.

**Example 2**

What is the ratio of footballs to all the balls?

There are 2 footballs. There are 6 balls in all.

The ratio of footballs to balls is 2 to 6 or \( \frac{2}{6} \).

This can be simplified: \( \frac{2}{6} \div 2 = \frac{1}{3} \).

For every 1 football, there are 3 balls.
The ratio of footballs to all the balls is 1 to 3.
It can also be written as 1:3 or \( \frac{1}{3} \).
Guided Practice

1. Write the ratio of pencils to paper clips as a fraction. Then, describe the ratio using words.

   **Step 1** Count the number of pencils. Count the number of paper clips.
   
   There are _______ pencils.
   
   There are _______ paper clips.

   **Step 2** Write a fraction comparing the pencils to the paper clips.
   
   \[
   \frac{\text{pencils}}{\text{paper clips}} = \frac{\Box}{\Box}
   \]

   The ratio of pencils to paper clips is _______.

   For every _____ pencils, there are _____ paper clips.

2. Write the ratio of vowels to all letters in the bag as a:b. Then, describe the ratio using words.

   **Step 1** Count the number of vowels. Count the number of letters in total.
   
   There are ______ vowels.
   
   There are ______ letters in total.

   **Step 2** Write a ratio comparing the vowels to the letters in total. Simplify by using the GCF.
   
   vowels: all letters = _____: _____
   
   \[
   4 \div \Box = \Box \quad 10 \div \Box = \Box
   \]

   The ratio of vowels to letters in the bag is _____.

   For every _____ vowels, there are _____ letters in the bag.