

**Lesson: Ratio**

**Sixth Grade Objective:** 5.04 Use graph, tables, and symbols to model and solve problems involving rates of change and ratios.

**Lesson**

Ratios tell how one number is related to another number.

A ratio may be written in three different ways:

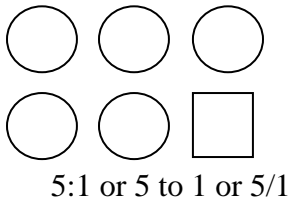
- Using a colon            1:3
- As a fraction            1/3
- Using the word “to”    1 to 3

**Important Tips to Remember:**

- Always be sure to write any ratio in simplest form.
- Make sure to write the ratio in the order given.

Example 1:

The ratio of circles to squares would be:



A ratio of 5:1 says that the first number is five times as large as the second. Using this ratio, how many circles would there be if you had 6 squares?

The ratio writes as a fraction can help you solve the problem. You need to find the equivalent fraction of 5/1 with the denominator of 6 (the number of square).

$$\frac{\text{Circles}}{\text{squares}} = \frac{5}{1} = \frac{?}{6} \quad ? = \text{the number of circles when there are 6 squares}$$
$$? = 30 \text{ circles}$$

Example 2:

You are going to buy a variety pack of cookies. The package says there are 8 chocolate chip cookies, 12 Oreos, 8 sugar cookies and 8 snicker doodles.

Find the ratios:

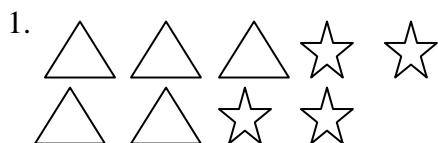
- a. Chocolate chip to all the cookies

- b. Sugar cookies to Oreos
- c. Snicker doodles to sugar cookies

First, make sure you read carefully and answer what is asked. Make sure to write your answer in simplest form.

- a. 8:36 should be reduced to 2:9 (or 2/9 or 2 to 9)
- b. 8:12 should be reduced to 2:3 (or 2/3 or 2 to 3)
- c. 8:8 should be reduced to 1:1 (or 1/1 or 1 to 1)

**Try these on your own! Simplify when needed!**



- a. ratio of triangle to stars
- b. ratio of stars to triangles
- c. Using the ratio stars to triangles, how many stars would you have if you had 15 triangles?

2. You bought a bag of marbles. In the bag there are 9 black marbles, 8 blue marbles, 14 green marbles and 7 yellow marbles.

- a. ratio of yellow marbles to all the marbles
- b. ratio of yellow marbles to green marbles
- c. ratio of black marbles to blue and green marbles

3. Complete the ratio table

1		6	12
3	12		

**Check your answers**

- 1. a. 5:4 (or 5/4 or 5 to 4)
- b. 4:5 (or 4/5 or 4 to 5)
- c. Stars  $\frac{4}{5} = ?$        $\frac{4}{5} = \underline{12}$       **12 stars**  
       triangles 5 15      5 15
- 2. a. 7:38 (or 7/38 or 7 to 38)
- b. 7:14 simplified to 1:2 (or 1/2 or 1 to 2)
- c. 9:22 (or 9/22 or 9 to 22)

3. Complete the ratio table

1	<b>4</b>	6	12
3	12	<b>18</b>	<b>36</b>

### Quiz Yourself

- A box of paint cans contain 5 black cans, 3 yellow cans, and 4 green cans.
  - What is the ratio of black cans to yellow cans?
  - What is the ratio of green cans to ALL the cans?
  - Using the ratio of green cans to all the cans how many cans of green paint would you have if you had a total of 48 cans of paints?
- The Westside Elementary School has 800 students. 425 of these students are boys. What is the ratio of boys to total students?
- What is the ratio of girls to boys?

### Check Your Answers

- 5:3 (or  $\frac{5}{3}$  or 5 to 3)
  - 4:12 simplified to 1:3 (or  $\frac{1}{3}$  or 1 to 3)
  - $\frac{1}{3} = \frac{?}{48}$        $\frac{1}{3} = \frac{16}{48}$   
16 cans of green paint
- 800- 425= 375 number of boys  
375:800 simplified is 15:32 (or  $\frac{15}{32}$  or 15 to 32)
- 425:375 simplified 17:15 (or  $\frac{17}{15}$  or 17 to 15)