

## Topic: RATIO DIVIDING

### Introduction:

A ratio is used to show how things are shared. It compares values by showing the relative sizes of two or more values. Ratios can be represented in different ways. Using the “:” to separate example values, or as a single number by dividing one value by the total.

### Videos:

[https://www.khanacademy.org/math/pre-algebra/rates-and-ratios/ratios\\_and\\_proportions/v/introduction-to-ratios-new-hd-version](https://www.khanacademy.org/math/pre-algebra/rates-and-ratios/ratios_and_proportions/v/introduction-to-ratios-new-hd-version)

### Summary:

#### **For example:**

If there are **2** boys and **3** girls you could write the ratio as:

- **2:3** (for every 2 boys there are 3 girls)
- **2/5** are boys and **3/5** are girls
- **0.4** are boys (by dividing 2 by 5)
- **40%** are boys (0.4 as a percentage)

### Example 1:



What is the ratio of oranges to strawberries? **3:4**

What is the ratio of strawberries to oranges? **4:3**

What is the ratio of oranges to total fruit? **3:7**

What is the ratio of strawberries to total fruit? **4:7**

**Example 2:**

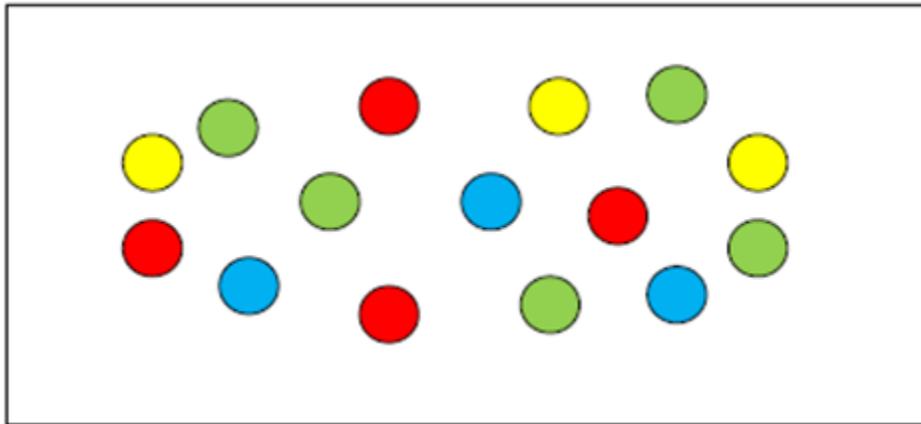


There are 3 blue squares to 1 yellow square

- Using “:” to separate the values: **3 : 1**
- Or we can use the word “to”: **3 to 1**

**Exercises 1:**

Carefully look at the colour buttons and fill up the blanks:



- Ratio of Red buttons to Yellow buttons is: \_\_\_\_\_
- Ratio of Blue buttons to Green buttons is: \_\_\_\_\_
- Ratio of Yellow buttons to Blue buttons is: \_\_\_\_\_
- Ratio of Red buttons to Green buttons is: \_\_\_\_\_
- Ratio of Blue buttons to Red buttons is: \_\_\_\_\_
- Ratio of Green buttons to the total is: \_\_\_\_\_
- Ratio of Red buttons to the total is: \_\_\_\_\_
- Ratio of Yellow buttons to the total is: \_\_\_\_\_
- Ratio of Blue buttons to the total is: \_\_\_\_\_

**Answers:**

- a) 4:3    b) 3:5    c) 3:3    d) 4:5    e) 3:4    f) 5:15    g) 4:15    h) 3:15    i) 3:15

### Exercises 2:

Fill in the blanks from the given statements:

- 1) There are 7 roses and 8 sunflowers in a garden.
  - a) Ratio of roses to sunflower is: \_\_\_\_\_
  - b) Ratio of sunflower to total flowers in the garden is \_\_\_\_\_
  - c) Ratio of roses to total flowers in the garden is: \_\_\_\_\_
  
- 2) There are 19 girls and 14 boys on a school bus:
  - a) Ratio of girls to boys is: \_\_\_\_\_
  - b) Ratio of girls to total number of students on the bus is: \_\_\_\_\_
  - c) Ratio of boys to total number of students on the bus is: \_\_\_\_\_
  
- 3) There are 12 comic books and 5 novels on a shelf in a bookstore.
  - a) Ratio of novels to comic books is: \_\_\_\_\_
  - b) Ratio of novels to total books on the shelf is: \_\_\_\_\_
  - c) Ratio of comic books to the total books on the shelf is: \_\_\_\_\_

### Answers:

- 1) a) 7:8            b) 8:15            c) 7:15  
2) a) 19:14        b) 19:33        c) 14:33  
3) a) 5:12        b) 5:17        c) 12:17

### Dividing Ratios (sharing in a given ratio):

Lots of things in everyday life are in shared ratios.

### Example 3:

Abdulla and Ali get pocket money in the ratio 3:5. The total amount of pocket money they are given is BD 24. How much money does each get?

### Answer:

- Ratio has 8 parts, since  $3 + 5 = 8$
- Abdulla gets 3 parts and Ali gets 5 parts.
- Share the BD24 between 8 parts by dividing 24 by 8:  $24 \div 8 = 3$
- So: Abdulla gets  $3 \times BD3 = BD9$
- Ali gets  $5 \times BD3 = BD15$

### Exercises 3:

Divide the following in the given ratios:

- 1) Divide 72 in the ration 1:2
- 2) Divide \$90 in the ratio 7:8
- 3) Divide 105 in the ratio 4:3
- 4) Divide £132 in the ratio 5:6
- 5) Divide 108 in the ratio 7:2
- 6) Divide BD150 in the ratio 9:1
- 7) Divide BD200 in the ratio 3:7
- 8) Divide 1540 in the ratio 9:5

#### Answers:

- 1) 24 and 48
- 2) \$42 and \$48
- 3) 60 and 45
- 4) £60 and £72
- 5) 84 and 24
- 6) BD135 and BD15
- 7) BD60 and BD140
- 8) BD990 and BD550

### Exercises 4 (Word problems):

- 1) A school collected BD272 for charity. It was decided to divide the money between The Children's charity and a Health charity in the ratio m3:5. How much did each charity receive?
- 2) Pocket money is split between Hawra, Mohamed and Isa in the ratio 2:3:4. Their dad gives them BD72. How much does each of them get?
- 3) Mr. Abdulaziz, Mr. Hassan and Mr. Hamza own 5,6 and 8 parts of a business respectively. The business makes a profit of BD 1140 in one week. How much does each man gets?
- 4) The concrete foundation of a building is made by mixing Cement, Sand and Aggregate in the ratio1:3:6. They need 70 cubic feet of concrete. How much cubic feet of Cement, Sand and Aggregate are needed?

#### Answers:

- 1) Children's charity = BD102 and Health charity = BD170

- 2) Hawra = BD16, Mohamed = BD24 and Isa = BD32
- 3) Aziz = 300, Hassan = 360 and Hamza = 480
- 4) Cement = 7, Sand = 21 and Aggregate = 42.