

# fs4u

## Using Ratios

### ‘How To’ Booklet 4

# Using Ratios

In addition to pen and paper you will need:  
a calculator. By the end of this booklet should be able to use simple ratios when talking about statistics.

## Ratios are way of comparing things

### Recipes often use ratios

#### Victoria Sponge

For every egg you use you need 2 oz sugar, 2 oz margarine and 2 oz flour.

The ratio of egg ; sugar ; margarine ; flour

is 1 : 2 oz : 2 oz : 2 oz

(when you see : say 'TO')

Notice that our ratios stay in the same order.

If we wanted the ratio of sugar : egg it is 2 oz :1

There is a group of 20 Students

11 are male 15 have brown eyes 2 are over 1.8m tall 16 wear trousers 3 wear shoes 10 wear sweatshirts 2 are over 18 years old	9 are female 5 have blue eyes 18 are less than 1.8 m tall 4 wear skirts 17 wear boots 3 wear sweaters 7 wear shirts 5 are 17 years 13 are 16 years
<p>We can compare them using ratios:</p> <p>e.g. ratios of males : females</p> <p>is 11:9 because 11 are male and 9 are female</p> <p><b><u>RULE</u></b></p> <p>Substitute the numbers for the words.</p> <p><b><u>Copy and Complete</u></b></p>	
1	The ratio of brown eyes : blue eyes is
2	The ratio of less than 1.8 m tall : more than 1.8 m tall is
3	The ratio of skirts : trousers is
4	The ratio of boots : shoes is
5	The ratio of sweatshirts : sweaters : shirts is
6	The ratio of over 18 year olds : over 17 year olds : under 16 year olds is

Check your answers

We can sometimes make the numbers smaller so as to make it easier to compare.

We call this simplifying.

e.g. The ratio of males : females in a hotel is 150 : 360.

We can divide 150 and 360 by 10

$$150 \div 10 = 15$$

$$360 \div 10 = 36$$

so the ratio males : females is 150 : 360

$$\begin{array}{l} 15 : 36 \\ 5 : 12 \end{array}$$

That means that for every 5 males there are 12 females.

That is much easier to understand than 150 : 360.

## RULE

### Divide each part of the ratio by the same number

Simplify these ratios

7	25:30	(divide by 5)
8	12 : 2	(divide by 2)
9	100 : 1000	(divide by 100)
10	50 : 700	(divide by 50)
11	88 : 22	(divide by 22)
12	60 : 24	(divide by 12)

Check your answers

Now simplify the answers to questions 1, 2 and 3.

It is always useful to have ratios with one in them because it is easy to compare.

If the ratio of cats : dogs is 3 : 1, it means there are 3 cats to every dog.

That's all there is to using ratios.

**Remember** – when analysing your data in surveys to use at least one pair of ratios to compare things.

# Self Assessment Test

- 1** On a Health and Social Care course there are 35 students, 21 of whom are female.

What is the ratio of:

- a females : males                      b. males : females ?

- 2** A firm employs 200 staff

10 earn £25,000 a year

40 earn £15,000 a year

the rest earn £12,000 a year.

- a** How many earn £12,000 a year?
- b** What is the ratio of the number of people who earn £25,000, £15,000 and £12,000?
- c** Simplify the answer to (b).