

4b – A Guide to Measuring Proportions

Calculating the proportion of a data set that display a particular quality can be a good way of making comparisons between places or circumstances.

Fractions

Fractions are the expression of a value out of 1, where a value of 1 represents the whole of the value of the data set.

Fractions should always be expressed in their smallest form: for example $\frac{1}{4}$ is used rather than $\frac{3}{12}$.

In a research study, if there are forty people within a data set and ten of them are from Town A, ten are from Town B and twenty are from Town C, the following fractions are true:

$\frac{1}{4}$ are from Town A $\frac{1}{4}$ are from Town B and $\frac{1}{2}$ are from Town C.

Percentages

A percentage is a fraction expressed as a value out of 100. It can be expressed as a percentage figure or a decimal.

The method for calculating percentages will already be well known to students at this level.

Percentages can be a useful way of presenting your findings.



Ratios

A ratio is normally used to show the quantity of one variable compared to another, and though in most cases this results in only two values being expressed against each other. It is also possible to have more than two variables in a ratio.

For example, if out of twenty people in a seaside café, five are local people compared to fifteen people who are tourists, the ratio of locals to tourists is 5 to 15, or 5:15. Ratios are always expressed in their lowest common form, so in this case, **1:3**

If, however, there are five local people, six tourists from the UK and nine tourists from overseas in the cafe, the ratio is **5:6:9**, (which cannot be expressed in any lower form).

Stating a ratio on its own is not really enough as the reader will not know without explanation in which order you have considered the variables (for example, what the 9 relates to exactly in the 5:6:9 ratio).