

E.g. 3, 7, 3, 4, 5, 7, 3, 3, 2, 6, 5, 5

Put in ascending order 2, 3, 3, 3, 3, 4, 5, 5, 5, 6, 7, 7 Median = $\frac{4+5}{2} = \frac{9}{2} = \underline{4.5}$

Mean

The mean (*arithmetic average*) of a set is the sum of all the values divided by the number of values in the set.

$$\text{Mean} = \frac{\text{Sum of all the values}}{\text{Number of values}}$$

E.g. 10, 7, 5, 9, 6, 9, 7, 3, 5, 6, 7, 8, 5, 4

$$\frac{10+7+5+9+6+9+7+3+5+6+7+8+5+4}{14} = \frac{91}{14} = \underline{6.5}$$

- 1). Marshall and Jubulani both use a calculator to find the mean of 4, 4, 6, 8. Marshall say his mean is 16, Jubulani says his mean is 5.5. Who is right and what mistake has the other person made.

The average we use must be representative of the set of data. The decision as to which average we choose is very important. If we use the wrong average it could distort the results and give misleading information.

	Mode	Median	Mean
Advantages	Very easy to use. Not affected by extreme values. Can be used on number and word data.	Easy to find when data is not grouped. Not affected by extreme values.	Easy to find. Uses all the values.
Disadvantages	Doesn't use all the values No mode or more than one mode may exist.	Doesn't use all the values	Extreme values can distort it.
Used for	Non-numerical data Finding the most likely value.	Data with extreme values	Data with values spread in a balanced way

- 2). For each set of data find the mode, median and mean.
- a). 6, 5, 11, 4, 8, 5, 6, 5, 12, 8
 - b). 8, 9, 3, 1, 7, 27, 2, 4, 3, 6
 - c). 11, 9, 13, 9, 12, 9, 13, 9, 11, 9
 - d). Which average would you use for each of the data sets above and why?

Range

The range is the measure of spread of the data. It is not an average. The range tells us how close together or how far apart the data is in the set.

$$\text{Range} = \text{largest value} - \text{smallest value}$$

E.g. 3, 7, 3, 4, 5, 7, 3, 3, 2, 6, 5, 5
Range = 7 - 2
= 5

