Measures of Central Tendency (Location)

Mean, median and mode are commonly used to average data.

- The **mean** is the all values added together, then divided by number of values.
- The **median** is the middle number when all values are placed in numerical order.
    - If the middle falls between two values, we find the mean of these two values.
- The **mode** is the most common, or most frequent value.

For example:
Find the mean, median and mode for the following sets of data:

a) 22, 22, 19, 25, 34, 26, 35
b) 3, 4, 6, 3, 2, 8, 4, 9, 4, 18
c) 23, 25, 29, 30, 32, 28
d) 2, 3, 2, 2, 1, 4, 1, 3, 1

Worked examples

a) Mean: $= \frac{22+22+19+25+34+26+35}{7}$

$= \frac{183}{7}$

$= 26.14$

Median: **put in numerical order** 19, 22, 22, 25, 26, 34, 35
Median = 25
Mode = 22 (as there are 2 of them)

b) Mean: $= \frac{3+4+6+3+2+8+4+9+4+18}{10}$

$= \frac{61}{10}$

$= 6.1$

Median: put in numerical order 2, 3, 3, 4, 4, 4, 6, 8, 9, 18
Median = falls between two 4's so median is 4

Mode = 4 (as there are 3 of them)

c) Mean: $= \frac{23+25+29+30+32+28}{6}$

$= \frac{167}{6}$

$= 27.83\dot{3}$

Median: put in numerical order 23, 25, 28, 29, 30, 32
Median falls between two values so we find the mean of these.

$= \frac{28+29}{2}$

$= \frac{57}{2}$

$= 28.5$

Median = 28.5
Mode = There is no mode

d) Mean: $= \frac{2+3+2+2+1+4+1+3+1}{9}$

$= \frac{19}{9}$

$= 2.1\dot{1}$

Median: put in numerical order 1, 1, 1, 2, 2, 2, 3, 3, 4
Median = 2
Mode = 1 & 2 (as there are 3 of each of them)