

Averages and Range



The **mode**
(the “modal average”)

The mode represents .

The **median**

The median represents .

The **mean**

The **mean** takes into account all values. We add up the values and divide by the number of values.

The mode
(the “modal average”)

The mode tends to be a good average when the values are **discrete** and have a limited range of values.
e.g. “red, red, red green blue” (the mode is ‘red’)

The median

Median is often good because it makes it easier to tell whether a value is in the top 50% or the bottom 50%.
It’s also **less sensitive to extreme values**.

The mean

The mean is the best average to use if we want to take **all the values** into account.

Salaries of people in the room: £13,000 £18,000 £24,000
£25,500 £26,000 £32,000 £45,000 £1,200,000

What would the best average be here?



Copy these numbers down, and work out the mean, mode and median.

10, 13, 15, 16, 17, 17, 20

The mode



The median



The mean



Copy these numbers down, and work out the mean, mode and median.

13, 13, 17, 20

The mode
(the “modal average”)



The median



The mean



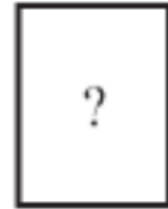
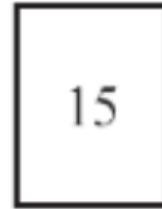
The range



The **range** is the difference between the smallest and largest number. The range is NOT an average.

Ed has 4 cards.

There is a number on each card.



The mean of the 4 numbers on Ed's cards is 10.

Work out the number on the 4th card.

Mr and Mrs Wilde have five children who are all **different** ages.

- The mean age is 6.4
- The range is 9
- The median is 6
- The oldest child is 12

Work out the ages of the children.

Write their ages from youngest to oldest.

..... (youngest)

.....

.....

.....

..... (oldest)

The following twelve integers are written in ascending order:

$1, x, x, x, y, y, y, y, y, 8, 9, 11$

The mean of these twelve integers is 7. What is the median?

The mean of four positive integers is 5. The median of the four integers is 6.

What is the mean of the largest and smallest of the integers?

The integer n is the mean of the three numbers 17, 23 and $2n$.

What is the sum of the digits of n ?

Write down three integers, all less than 25, whose

- range is 8, and
- mean is 13.

The three integers are

Write down five numbers that satisfy all of the following conditions:

- They are all between 1 and 9 inclusive.
- They have a median value of 6.
- They have a range of 7.
- Their mean is 5.

The mean of three numbers x , y and z is x . What is the mean of y and z ?

Give your answer in terms of x .