Introduction – Mean, Median, Mode, & Range

The **mean** is found by adding up all the data and dividing by how many pieces of data there are.

The **median** is the middle value when the data is put in order of size.

The **mode** is the most common piece of data. You are allowed up to two modes if data is tied for the most common.

The **range** is the difference between the largest and smallest pieces of data.

How to find the mean, median, mode, and range of a set of data

Example 1 - Finding the mean

A football fan records how many goals his team scored in their last 15 football matches. Here are the results:

2, 3, 0, 0, 1, 3, 4, 2, 5, 0, 1, 1, 2, 1, 1

What is the mean average number of goals scored? Give your answer to one decimal place.

First add up all the pieces of data to find the total number of goals scored:

2 + 3 + 0 + 0 + 1 + 3 + 4 + 2 + 5 + 0 + 1 + 1 + 2 + 1 + 1 = 26 goals

Now divide by the total number of games:

26 ÷ 15 = 1.73...

On average the team scored 1.7 goals per game (rounded to one decimal place).

Example 2 - Finding the median

A golfer records her scores for the last 8 rounds of golf she plays. Here are her results:

72, 75, 80, 81, 76, 77, 77, 74

What is her median score?

To find the median, we first need to put the scores in order from smallest to largest.

72, 74, 75, 76, 77, 77, 80, 81

Since we have an even number of values we find 76 and 77 are in the middle. The median is halfway between 76 and 77, which is 76.5.

For an odd number of values you will always have an exact middle, so the middle number will be your median. No extra calculation is necessary.

Example 3 - Finding the mode

The weekly wages of 10 people in a factory are:

$220, $250, $250, $305, $450, $210, $200, $305, $265, $305, $450

What is the modal weekly wage?

The mode is the value which occurs most often in a set of data. Three people were all paid $305, so this is the most common value. So we say $305 is the mode.

Example 4 - Finding the range

A reaction test records the reaction speed of 5 people. Here are the results:

0.27s, 0.296s, 0.271s, 0.262s, 0.333s

What is the range of reaction times?

The range is the difference between the largest and smallest value in the data. In this case, 0.333s and 0.262s are the largest and smallest values.

So the range is 0.333 - 0.262 = 0.071 s.

There is a range of 0.071s between the fastest and slowest reaction time.