Chapter 27 - Comparing Sets of Data

Mode median mean from frequency table 6 minutes and 22 seconds

There are three different ways in which we can express an average value, a representative value for a set of data, these are the mode, the median and the mean. I'm going to show you how you can find these three values when the set of data is presented in a frequency table. Here's an example, some children were asked how many letters there were in their first name. The names they were called by. Each child wrote down how many letters in their name and then, the frequency table was compiled to show how many numbers of children had various letters in their names. So here we find there were five children with three letters in their name, six with four letters and so on. So, there's the data now let's imagine we need to find the mode or the median or the man of this set of data. Well the mode is the very easiest one to find, the mode is the value of the variable, the variable being the number of letters in the name. The value of the variable the number that occurs most frequently and that is five we can see that because the five occurs twelve times which is more than any other frequency in this table. So, the mode is five letters. The modal value of this variable is five. Well that was easy, let's now have a look at finding the median.

The median of a set of data is the one comes in the middle if yu arrange them all in order in a line form the smallest to the largest. Now with a set of data, we have five children for whom the value of the variable is three, three letters in their name. So, if we had the children sitting down holding up cards, with the number of letters in their name, then the first five of these cards would say three and the next six would say four and then we'd get twelve saying five and so on all the way along till we get the last one that would say ten. Now how many children are there in the set? Are there…if I add up the number of children in that column, the total is forty-seven, so the one that's going to come half way along my list, will be the twenty-fourth one. I need to find the value of the twenty-fourth in this list, Twenty-fourth is in the middle because in forty-seven there

are twenty-three that come before the twenty-fourth and twenty-three that come after the twenty-fourth. So, it's bang in the middle. So where is the twenty-fourth value in this list, what is it going to be? Well, there are five threes for a start at the beginning, when we counted those five threes if we then count the next six fours, we will have a total of eleven so far in our list. When we've got to the end of the fives, there will be a total of twenty-three in your list, five add six add twelve.

So, where's the twenty-fourth one going to be, the twenty-fourth is going to be one of these ten children with six letters in their name. So that's the median value, the child in the middle will be holding up a card saying six. The median is six letters.

Right, now we come to finding the mean well the mean of a set of data is what you get if you add up all the values of the variable in the set and then divide by the total number items of data. In this case, we have forty-seven items of data, so we're going to divide the total of all the numbers and letters by forty-seven. So, we can start at the beginning here adding three and three and three and three and three and then four and four and four and keep going all the way along. But we can shorten this process by using the products of the numbers in our two columns. There are five children with three letters in their name, so the five threes are going to add up to fifteen there they are, and these six fours are going to add up to twenty-four. And then the twelve fives will add up to sixty. The ten sixes, the ten children with six letters in their name will contribute sixty letters in total, to the whole sum of how many letters there are altogether in all their names.

Nine sevens gives us sixty-three, four children with eight letters in their name that'll add up to thirty-two. Zero children with nine letters in their name that's zero and one child with ten so that's a total of ten for that row. And now we just have to add up these products to get the total number of letters in all the names of all the children. Two hundred and sixty-four letters, to find the mean we have to divide two hundred and sixty-four by forty-seven which I've done on a calculator and the answer five point six to one decimal place, so we've finished our task. The mean is five point six letters so that's

how you find these three important averages, the mode, the median and the mean.

From a frequency table.