

Data

When we are given information about a topic it should be treated as data. The data, usually, is interpreted or presented. Data is either given to you in a tabular form or in a graphical form. You should be able to transphere one to the other. Below are several methods which you should be able to use to display data: Bar Chart If you are given discrete data you can put it into a bar chart. I have used the data as before with the number of odd numbers and the number of even numbers.

? Histogram

Although a histogram looks like a bar chart, it is actually very different. Instead of the height of the bars representing the frequency it is actually the frequency density or area of the bars. The frequency density is always on the verticle axis. On the horizontal axis is the type of data represented. This has to be a number (like number of apples or time taken) rather than a subject (like odd numbers and even numbers). This means there are no gaps between the bars in the histogram and the width of the can vary.

Frequency density is worked out by : $\text{Frequency} / \text{Width of Bar}$

We can take the numbers used before for the following example:

NumberWidth of BarFrequencyFrequency Density 1 to 221111 / 2 = 5.5 3 to 4299 / 2 = 4.5 5199 / 1 = 9 6199 / 1 = 9 7 to 931212 / 3 = 4

The histogram contains five bars which have different widths. In these cases we must use frequency density in a histogram. The frequency can be worked out by multiplying the width of the bar with its height. The bars do not have a gap between them although there is a gap between 2 and 3. You make up for this by making the bars go from 0.5 to 2.5. This fills the gap in. So, rather than the bars going from 5 to 6 the bar now goes from 4.5 to 5.5.

? Line Graph

A line graph plots the points corresponding to two values. Below is an example.

x?0306090120 150180210240270300 330360sin x?0.00 0.500.861.000.860.50 0.00-0.50-0.86-1.00-0.86 -0.500.00

The points for this graph when joined together look like a curve. In cases where the points form a curve you should draw a smooth curve. If the points form a line you can connect the points to form a line. If points are scattered you can draw a best fit line.

? Pie Chart

To show how values are distributed you can use a pie chart. The distribution is represented by areas of the pie chart. The area is worked out by the number of degrees the sector of the circle should take up. This is worked by finding the number of degrees that one unit takes up. Find this by $360 / \text{Total number of units}$. Then you multiply this number by the number of units a sector has to represent. Below is an example:

Using the numbers from the tally chart above, we have a total of 50 units. This means for every one of these units the sector should take up $360 / 50 = 7.2^\circ$. From this we can see that the sector representing evan numbers is $21 \times 7.2 = 151.2^\circ$. The sector representing odd numbers is $29 \times 7.2 = 208.8^\circ$.

About the Author

GCSE Mathematics Revision notes by Richard Tang.

Source: <http://crampuppy.com>