Uncertainty and Error = Graphs

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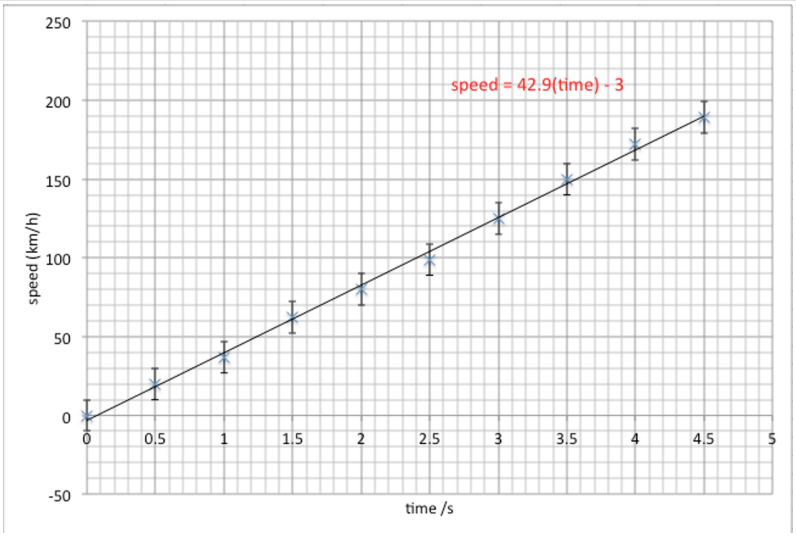
Oh the boredom of errors on graphs....



You should ideally have a line that goes through the all the errors bars - you know, nice curve, straight line etc

As you know the point of drawing a graph is to look for a correlation, and nearly always (at A level anyway) this leads to getting a gradient.

It is common to have error bars on both the y and x variables.

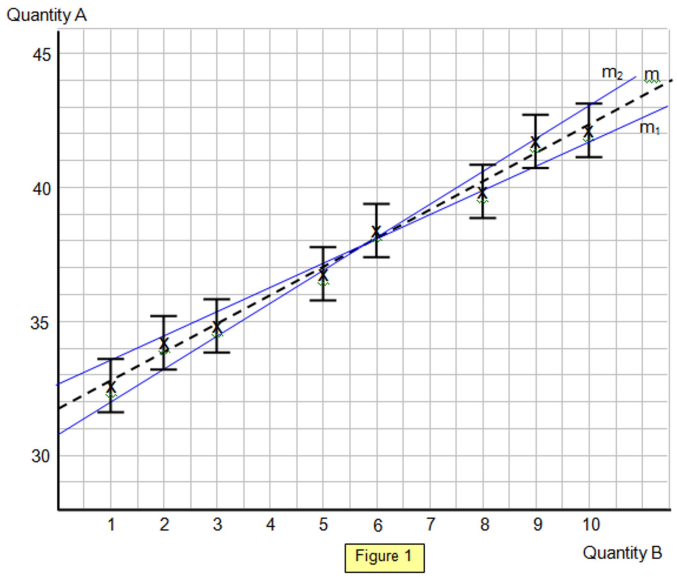


Figure 1

Often you can draw different straight lines through a set of points - leading to a range of gradients

Find the gradient of the best line - this is m in the diagram.

You can use these to get uncertainty on the gradient value:

Find the greatest (m2) and the least (m1) gradients. M1 and m2 represent the 'worst' values of the gradient.

The uncertainty of the gradient is given by the difference between the 'best fit' line and the worst gradient - ie the one that is furthest from the best fit -- hard to say on this diagram which one it is!!!

You can also get values for the uncertainty on the y-intercept.