OCR Physics A Level

1- Practical Skills

Flashcards

What is the difference between independent and dependent variables?

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- Independent variables are what you change in an investigation. Dependent variables are what is observed or measured.
- Independent variables are normally the cause of the effect on the dependent variables.

What are control variables?

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Control variables are any other quantities that could change the value of the dependent variable and need to be kept constant during the experiment.

How should you scale your axes?

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Intervals should be regular (e.g. go up in 2s, 5s, 10s, etc.) and the plotted data should take up at least 50% of the graph.

How should a line of best fit be drawn?

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It should be a straight line that goes through the middle of the data – there should be an equal number of plotted points either side of the line (or as close to equal as possible).

When drawing a line of best fit on a graph with error bars what must you do?

When drawing a line of best fit on a graph with error bars what must you do?

Ensure the line of best fit goes through all the error bars.

How do you find the uncertainty in the gradient of a line of best fit?

How do you find the uncertainty in the gradient of a line of best fit?

- Draw a steepest or shallowest line of worst fit, it must go through all the error bars.
- Then, calculate the gradient of the best and worst line.
- The uncertainty will be the difference between the best and worst gradients.

How can you find the percentage uncertainty in the gradient of a line of best fit?

How can you find the percentage uncertainty in the gradient of a line of best fit?

$$percentage\ uncertainty = \frac{(|best\ gradient - worst\ gradient|)}{best\ gradient} \times 100$$

(modulus lines show that it is always positive)

How do you work out the uncertainty in the y-intercept of a line of best fit?

How do you work out the uncertainty in the y-intercept of a line of best fit?

Draw a best and worst line of fit, you can find the uncertainty in the y-intercept by:

$$| \text{best y-intercept} - \text{worst y-intercept} |$$

(modulus lines show that it is always positive)

How do you find the percentage uncertainty in a y-intercept?

How do you find the percentage uncertainty in a y-intercept?

$$percentage\ uncertainty = \frac{(|best\ y-intercept - worst\ y-intercept|)}{best\ y-intercept} \times 100$$

(modulus lines show that it is always positive)

What is estimation?

What is estimation?

A skill physicists must use in order to approximate the values of physical quantities; this is done in order to make comparisons, or to check if a calculated value is reasonable.