

OCR Physics A Level

1- Practical Skills

Flashcards



What is the difference between independent and dependent variables?



What is the difference between independent and dependent variables?

- 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?



What are control variables?

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?



How should you scale your axes?

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?



How should a line of best fit be drawn?

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?

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

(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?

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

(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.

