

Definitions and Concepts for AQA Physics A Level

Topic 1: Measurements and their Errors

Accuracy: A measure of how close a measurement is to the true value.

Precision: A measure of how close a measurement is to the mean value. It only gives an indication of the magnitude of random errors, not how close data is to the true value.

Random Error: Unpredictable variation between measurements that leads to a spread of values about the true value. Random error can be reduced by taking repeat measurements.

Systematic Error: Causes all readings to differ from the true value by a fixed amount. Systematic error cannot be corrected by repeat readings, instead a different technique or apparatus should be used.

Repeatable: The same experimenter can repeat a measurement using the same method and equipment and obtain the same value.

Reproducible: An experiment can be repeated by a different experimenter using a different method and different apparatus, and still obtain the same results.

Resolution: The smallest change in a quantity that causes a visible change in the reading that a measuring instrument records.

Uncertainty: The interval that a value is said to lie within, with a given level of confidence.

