

I'm not robot





The goal of every experiment is to determine a physical quantity with maximum accuracy. However, measurements are always affected by some degree of error, which can arise from various factors such as the observer, instrument used, or environmental conditions. These errors can also be influenced by subtle changes in the experimental setup and other inherent factors within the experiment. As a result, the measured value of a quantity deviates slightly from its actual value due to these errors. Proportional Error and Least Count Explained Proportional error, also known as fractional error or percentage error, is a measure of the difference between the actual value of a quantity and its estimated value. The least count of an instrument refers to the smallest measurement it can make with precision. A smaller least count allows for more accurate measurements. For instance, a tape measure with 18 divisions has a least count of 1 (18/18), while a micrometer or digital caliper has a lower least count, enabling it to take more precise readings. The accuracy of an instrument is directly related to its least count. In the case of vernier calipers, electronic Vernier has a smaller least count (0.01) compared to mechanical Vernier (0.02), making it more accurate. The formula for calculating least count is given as: Least count = Known interval / Number of division. Errors in measurements occur when the actual value differs from the estimated value. There are three types of errors: systematic, random, and gross. Systematic error occurs due to unknown causes, while proportional error refers to the ratio of error to observed reading.

Explain the different types of systematic errors class 11. How many types of systematic error. What is systematic error class 11. Types of systematic error. Define systematic error class 11. Classifications of errors.