Significant Digits in Measurement

Integers

If your measurement has no decimal point, count digits from the first digit to the last non zero digit

eg. A measure of 2600 has two significant digits. The error of this measure is 50, so the accuracy is 2600 ± 50 or between 2550 and 2650.

Decimals

If your measurement has a decimal point, count digits from the first non zero digit to the last digit.

eg. A measure of 25.300 has 5 significant digits with error of the measure is .0005 or the acurracy between 25.2995 and 25.3005

eg. 2.30×3^{-5} has 3 significant digits whereas 2.300×3^{-5} has 4 significant digits.

Accuracy in Calculated Values

Answers to multiplication have as many significant digits as the number with the smallest number of significant digits.

eg. $\frac{200. \times 34.0}{12} = 570$ to two significant digits whereas

$\frac{200 \times 34.0}{12} = 600$ to one significant digit.

Rounding 5

If your last digit is 5 and the digit preceding 5 is an odd number, you round up.

If your last digit is 5 and the digit preceding 5 is an even number, you round down.

eg. 13.5 rounds to 14 to 2 significant digits.

12.5 rounds to 12 to 2 significant digits, but

12.5001 rounds to 13 to 2 significant digits.

Angles

To the nearest degree $\rightarrow$ 2 significant digits

To the nearest tenth of a degree or nearest 10' $\rightarrow$ 3 significant digits

To the nearest hundredth of a degree or nearest 1' $\rightarrow$ 4 significant digits

To the nearest thousand of a degree or nearest 0.1' $\rightarrow$ 5 significant digits

eg. $Sin 20°10' = .345$ (3 significant digits) whereas

$Sin 20°11' = .3450$ (4 significant digits)