Numerical Analysis

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1   Chap1 Mathematical Preliminaries

1.1   1.2 Roundoff Errors and Computer Arithmetic

Truncation Error : the error involved in using a truncated, or finite, summation to approximate the sum of an infinite series

    Roundoff Error: the error produced when performing real number calculations. It occurs because the arithmetic performed in a machine involves numbers with only a finite number of digits.

    Suppose $y = 0.d_1 d_2 \ldots d_k d_{k+1} d_{k+2} \ldots \times 10^n$

$$fl(y) = \begin{cases} 0.d_1 d_2 \ldots d_k \times 10^n & \text{chopping} \\ chop(y + 5 \times 10^{n-(k+1)}) = 0.\delta_1 \delta_2 \ldots \delta_k \times 10^n & \text{Rounding} \end{cases}$$

Theorem 1 *weafewf*