Answer on Question #79636 – Math – Quantitative Methods

Question

Define local truncation error.

Solution

The truncation error of a numerical method results from the approximation of a continuous dynamical system by a discrete one. The truncation error is machine independent, depending only on the algorithm used and the step size h. An important concept in the analysis of the truncation error is that of consistency. Basically, consistency requires that the discrete variable method becomes an exact representation of the dynamical system as the step size $h \to 0$.

The local truncation error:

$$d_i = \frac{y(t_{i+1}) - y(t_i)}{h} - f\big(t_i, y(t_i)\big)$$