Numerical Methods For Ordinary Differential Equations

Here we give methods to solve the following initial-value problem of an ordinary differential equation:

$$\begin{cases} \dfrac{dx}{dt} = f(x,t) \\ x(t_0) = x_0 \end{cases}$$

The methods will use a computational grid:

$$t_n = t_0 + nh$$

where h is the grid size.