

$$y'(t) = f(t, y(t))$$

Forward Euler (Explicit)

$$y(t_n) \sim \frac{y_{n+1} - y_n}{h}$$

$$y_{n+1} = y_n + h f(t_n, \underline{y_n})$$

error : $e_n := |y(t_n) - y_n|$
at t_n

Backward Euler (Implicit)

$$y'(t_{n+1}) \sim \frac{y_{n+1} - y_n}{h}$$

$$y_{n+1} = y_n + h f(t_{n+1}, \underline{y_{n+1}})$$