

## III.2 The Euler methods

Consider the scalar IVP

$$\dot{y}(t) = f(t, y(t))$$

$$y(t_0) = y_0$$

Goal: Find approximation of the solution  $y(t)$   
for  $t_0 \leq t \leq T$ .

Idea: Partition the interval  $[t_0, T]$  regularly  
with

$$t_j = t_0 + j \cdot h \quad \text{step size}$$
$$= t_0 + j \cdot \frac{T - t_0}{N} \quad j = 0, 1, \dots, N-1$$

and approx. the solution by "following"  
the slope field

