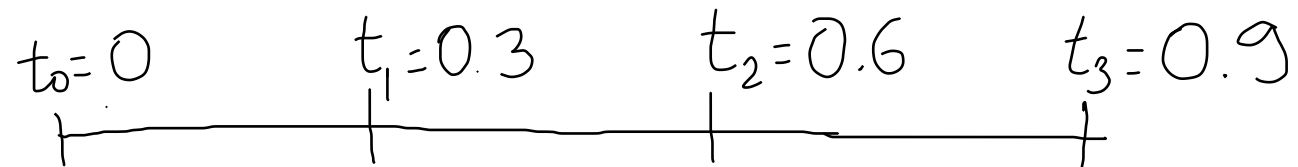
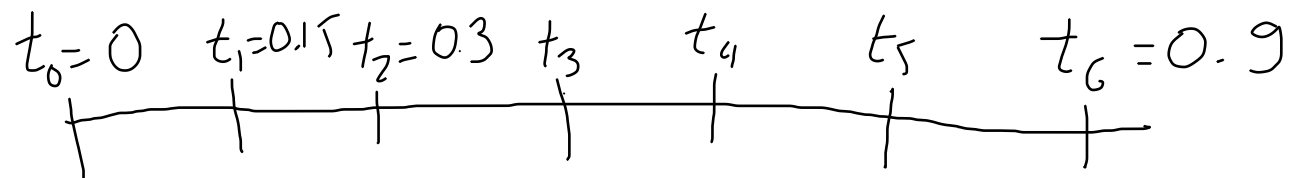


$$\begin{cases} y'(t) = f(t, y(t)) & t \in [a, b] \\ y(a) = y_0 \end{cases}$$

$$[a, b] = [0, 0.9], \quad h = 0.3, \quad h = 0.15$$



$$h = 0.3$$



$$h = 0.15$$



$$h = 0.075$$

$$\begin{cases} y'(t) = (1-2t)y(t) & [0, 0.9] \\ y(0) = 1 \end{cases}$$

$$h=0.3 \quad y_3 \approx y(t_3) = y(0.9), \quad y_3 = 1.3686$$

$$h=0.15 \quad y_6 \approx y(t_6) = y(0.9), \quad y_6 = 1.2267$$

$$h=0.075 \quad y_{12} \approx y(t_{12}) = y(0.9), \quad y_{12} = 1.1591$$

$$y(t) = e^{\left\{ \frac{1}{4} - \left( \frac{1}{2} - t \right)^2 \right\}}$$

$$y(0.9) \approx 1.0942$$

$h$	Οπίσω βήματα ( $t=0.9$ )	$\Sigma \alpha_{\mu\alpha\tau\omega} / h$
0.3	$y(0.9) - y_3 \approx -0.2745$	- 0.91
0.15	$y(0.9) - y_6 \approx -0.1325$	- 0.89
0.075	$y(0.9) - y_{12} \approx -0.0649$	- 0.86

$$e_n = y(t_n) - y_{jn} \quad \text{Όπως βγαίνει } \underline{t_n}$$

$$\text{Για } t=0.9, \quad e_n \approx -0.9 \times h$$

$$\text{Αν θέλουμε } |e_n| \leq \frac{5 \times 10^{-4}}{0.9} \approx 0.9 \cdot h$$

$$\text{Άρα } h < \frac{5 \times 10^{-4}}{0.9} \approx 0.00055$$

$$\text{Για βήματα } n \approx \frac{0.9}{h} = \frac{0.9}{0.00055} \approx 1620$$