

1.5

$$\dot{x} = -\sqrt{x}$$

$$\frac{dx}{dt} = -\sqrt{x}$$

$$-x^{-\frac{1}{2}} dx = dt \quad | \int$$

$$-x^{\frac{1}{2}} \cdot 2 = t + C_1$$

$$x(t) = \frac{1}{4} \cdot (-t + C_2)^2 = \frac{t^2}{4} - \frac{2tC_2}{4} + \frac{C_2^2}{4}$$

$$x(0) = \frac{1}{4} \cdot (C_2)^2 = \frac{t^2}{4} - \sqrt{x_k} \cdot t + x_k$$

$$x(0) = x_k$$

$$t = (k+1) \cdot T_n$$

$$x((k+1) \cdot T_n) = x_{k+1}$$



$$x_{k+1} = \frac{(k+1)^2 T_n^2}{4} - \sqrt{x_k} \cdot (k+1) \cdot T_n + x_k$$

Rekurrenz:

$$x_{k+1} \stackrel{!}{=} x_k$$

$$\frac{(k+1)^2 T_n^2}{4} = \sqrt{x_k} \cdot (k+1) \cdot T_n + x_k \quad \frac{(k+1)^2 T_n^2}{16}$$