

$$y''' - 2y'' + y' = 0$$

$$y(0) = 0, \quad y'(0) = 1, \quad y''(0) = 0$$

Obecné řešení:

$$Y_4 \dots y(t) = c_1 + c_2 \cdot e^t + c_3 \cdot t \cdot e^t, \quad c_1 \in \mathbb{R}, c_2 \in \mathbb{R}, c_3 \in \mathbb{R}$$

$$y'(t) = c_2 \cdot e^t + c_3 \cdot (t+1) \cdot e^t$$

$$y''(t) = c_2 \cdot e^t + c_3 \cdot (t+2) \cdot e^t$$

$$y(0) = 0 \quad c_1 + c_2 = 0$$

$$y'(0) = 1 \quad c_2 + c_3 = 1$$

$$y''(0) = 0 \quad c_2 + 2c_3 = 0$$

$$c_3 = -1, \quad c_2 = 2, \quad c_1 = -2$$

$$\varphi(t) = -2 + 2 \cdot e^t - t \cdot e^t$$