

(ZNAČBA Z LOČLJIVIMI
SPREMENLJIVKAMI)

$$y' = 2\sqrt{y} \ln x \quad y(e) = 1$$

$$\frac{dy}{2\sqrt{y}} = \ln x dx \quad \text{pa po}$$

$$\frac{dy}{dx} = 2\sqrt{y} \ln x \quad | : y \neq 0$$

$$\frac{dy}{2\sqrt{y}} = \ln x dx$$

$$\left. \begin{array}{l} y=0 \Rightarrow y'=0 \\ 2\sqrt{y} \ln x = 0 \end{array} \right\} y=0 \text{ JE} \\ \text{TUDI} \\ \text{RESITEV}$$

$$\int \frac{1}{2} y^{-\frac{1}{2}} dy = \int \ln x dx$$

$$y^{\frac{1}{2}} = x(\ln x - 1) + C, \quad C \in \mathbb{R}$$

$$\sqrt{y} = x(\ln x - 1) + C$$

POSTEVAJMO ZAČETNI POGOJ: $y(e) = 1$:

$$\sqrt{1} = e(\ln e - 1) + C \Rightarrow C = 1 \Rightarrow \underline{\underline{\sqrt{y} = x(\ln x - 1) + 1}}$$

$$(*) \int \ln x dx = x \ln x - \int x \cdot \frac{1}{x} dx = x \ln x - \int dx = x \ln x - x = x(\ln x - 1)$$

$$\ln x = u \quad dx = du$$

$$\frac{1}{x} dx = du \quad x = v$$