

$$x=1 \quad y=2$$

Primjer. Nađi koliko iznosi  $f(2.5)$  ako  $f$  zadovoljava  $\sin x \, dy = y \ln y \, dx$  i  $y(1) = 2$ .

SEPARIRANO ✓

$$\int \frac{dy}{y \ln y} = \int \frac{dx}{\sin x}$$

~~LINEARNA~~

~~HOMOGENA~~

$$\int \frac{dy}{y \ln y} = \left. \begin{array}{l} t = \ln y \\ dt = \frac{dy}{y} \end{array} \right\} = \int \frac{dt}{t} = \ln |t| = \ln |\ln(y)| + C$$

$$\int \frac{dx}{\sin x} = \int \frac{\cancel{2dt}}{\cancel{1+e^x}} = \int \frac{dt}{t} = \ln |t| = \ln \left| \tan \frac{x}{2} \right| + C$$

$$\ln |\ln |y|| = \ln \left| \tan \frac{x}{2} \right| + C \quad / e^{\square}$$

$$\rightarrow \ln |y| = C \cdot \tan \frac{x}{2} \quad / e^{\square}$$

$$\tan 1.25 =$$

$$\ln 2 = C \cdot 0.55$$
$$C = \frac{\ln 2}{0.55}$$

$$C = 1.26$$

$$y(x) = e^{C \tan \frac{x}{2}}$$

$$2 = y(1) = e^{C \cdot 0.55} \quad / \ln$$

$$y(x) = e^{1.26 \tan \frac{x}{2}}$$

$$f(2.5) = e^{1.26 \tan^2 \frac{2.5}{2}} \approx 44.35$$