

$$1) y' + \frac{1}{x}y = -e^x \rightarrow \text{интеграција г.ј.}$$

$$y = e^{-\int P(x) dx} \left[ C + \int Q(x) e^{+\int P(x) dx} dx \right]$$

$$\int P(x) dx = \int \frac{1}{x} dx = \ln|x|$$

$$\int Q(x) e^{+\int P(x) dx} dx = \int (-e^x) e^{\ln x} dx = -\int x e^x dx$$

$$\int x e^x dx = \left| \begin{array}{l} x = u \quad e^x dx = dv \\ dx = du \quad e^x = v \end{array} \right| \rightarrow \text{парцијална} \\ \text{интеграција}$$

$$= x e^x - \int e^x dx = x e^x - e^x$$

$$\int Q(x) e^{+\int P(x) dx} dx = -(x e^x - e^x) = -x e^x + e^x$$

$$y = e^{-\ln x} [C - x e^x + e^x]$$

$$\underline{y = \frac{1}{x} [C - x e^x + e^x]}$$

$$e^{-\ln x} = e^{\ln x^{-1}} = x^{-1} = \frac{1}{x}$$