$$\int_{0,1}^{1} \frac{e^x}{x}\,dx \overset{\text{pro } x \in \mathbb{R}}{=} \int_{0,1}^{1} \frac{\sum_{n=0}^{\infty} \frac{x^n}{n!}}{x}\,dx = \int_{0,1}^{1} \left(\sum_{n=0}^{\infty} \frac{x^{n-1}}{n!} \right) dx \overset{\text{díky stejnoměrné konvergenci}}{=}$$

$$= \sum_{n=0}^{\infty} \int_{0,1}^{1} \frac{x^{n-1}}{n!}\,dx = \int_{0,1}^{1} \frac{x^{-1}}{0!}\,dx + \sum_{n=1}^{\infty} \int_{0,1}^{1} \frac{x^{n-1}}{n!}\,dx =$$

$$= \int_{0,1}^{1} \frac{1}{x}\,dx + \sum_{n=1}^{\infty} \int_{0,1}^{1} \frac{x^{n-1}}{n!}\,dx =$$

$$= \Big[\ln|x|\Big]_{0,1}^{1} + \sum_{n=1}^{\infty} \left[\frac{x^n}{n \cdot n!}\right]_{0,1}^{1} =$$

$$= \left(\ln 1 - \ln \frac{1}{10}\right) + \sum_{n=1}^{\infty} \left(\frac{1^n}{n \cdot n!} - \frac{\left(\frac{1}{10}\right)^n}{n \cdot n!} \right) \doteq$$

$$\doteq \underbrace{-\ln \frac{1}{10}}_{1.\,\text{člen}} + \underbrace{\frac{1^1 - \left(\frac{1}{10}\right)^1}{1 \cdot 1!}}_{2.\,\text{člen}} + \frac{1^2 - \left(\frac{1}{10}\right)^2}{2 \cdot 2!} + \frac{1^3 - \left(\frac{1}{10}\right)^3}{3 \cdot 3!} + \frac{1^4 - \left(\frac{1}{10}\right)^4}{4 \cdot 4!} + \underbrace{\frac{1^5 - \left(\frac{1}{10}\right)^5}{5 \cdot 5!}}_{6.\,\text{člen}} =$$

$$\doteq 3{,}518$$