Homework 1
Deadline: 1.3.2018 at 14:00

Justify every claim formally!

1. Use Taylor series expansion to estimate the value of $\ln(1,1)$ with error less than 10^{-4}.
2. Calculate $\lim_{x \to 0} \dfrac{\cos x - e^{-\frac{x^2}{2}}}{x^4}$.
3. Calculate the following indefinite integral and determine the domain on which is your result valid: $\int \ln^n(x)\ \mathrm{d}x$, where $n \in \mathbb{N}$.