# Konvergence Newtonova integrálu, týden 8, cvičení 14

Vyšetřete konvergenci následujících integrálů

1. $\displaystyle\int_0^1 \frac{dx}{e^x - \cos x}$

2. $\displaystyle\int_0^{\frac{\pi}{2}} \frac{dx}{\cos x \sqrt{\sin x}}$

3. $\displaystyle\int_0^{\frac{\pi}{2}} \frac{dx}{\sqrt{\cos x}\sqrt{\sin x}}$

4. $\displaystyle\int_0^{\frac{\pi}{2}} \tan x \, dx$

5. $\displaystyle\int_0^{\frac{\pi}{2}} \frac{dx}{\sqrt{\tan x}}$

6. $\displaystyle\int_0^1 x^{-10x} \, dx$

7. $\displaystyle\int_0^1 \frac{\log(1 - x^2)}{x^2\sqrt{1 - x^2}} dx$

8. $\displaystyle\int_0^{\infty} (\pi - 2\arctan(x)) \, dx$

9. $\displaystyle\int_0^1 \frac{\arccos x \, dx}{\log^2(1/x)}$

10. $\displaystyle\int_1^2 \frac{\sqrt{x - 1} \, dx}{\sqrt{x} - \sqrt[3]{x}}$

11. $\displaystyle\int_1^{\infty} \sqrt[4]{\exp\left(\frac{1}{x^2}\right) - \exp\left(\frac{-1}{x^2}\right)} \cdot \frac{\log(x + 1)}{x + 1} \, dx$

12. $\displaystyle\int_0^1 \log(\operatorname{arctg} x) \cdot \frac{\pi - 2\arcsin(x)}{(e^{1-x} - 1)^2} \, dx$

13. $\displaystyle\int_0^5 \frac{\log(x^2 - 10x + 26) \, dx}{x \, e^{1/x} \, (5 - x)^{5/2}}$

14. $\displaystyle\int_1^{\infty} \frac{\left(1 - \cos\frac{1}{x}\right)^{3/4}}{\sqrt{\sin\frac{1}{x}}} \operatorname{arctg}\left(3 + \frac{\log x}{x}\right) \, dx$

15. $\displaystyle\int_0^1 \frac{e^{2x^2} - e^{x^2}}{x^3\sqrt{\sin x}} \cdot \log(2 + \operatorname{arctg} x) \, dx$