

Limity funkcí, týden 1, cvičení 2 (23.2.2024)

Spočtěte limity.

- $\lim_{x \rightarrow 0} \frac{\cos(x) - \exp(-\frac{1}{2}x^2)}{x^4}$.
 - $\lim_{x \rightarrow 0} \frac{\cosh(x) - \sqrt{\cos x}}{x^2}$.
 - $\lim_{x \rightarrow 0} \frac{\sqrt[3]{1+3x} - \sqrt[4]{1+4x}}{\cos(ax) - \cos(bx)}, |a| \neq |b|$.
 - $\lim_{x \rightarrow 1} (1-x) \tan \frac{\pi x}{2}$.
 - $\lim_{x \rightarrow 0} \frac{\tan x - x}{\sin x - x}$.
 - $\lim_{x \rightarrow \infty} \log(x(\pi - 2 \arctan x))$
 - $\lim_{x \rightarrow 0} \frac{e^x - \sin x}{x^n}$
 - $\lim_{x \rightarrow 0} \frac{\exp(x^2 + x) - \sin x + 3 \cos x - 4}{\arctan^3 x}$
 - $\lim_{x \rightarrow 0} \frac{e^x - \sin x - 1}{x^2}$
 - $\lim_{x \rightarrow 0} \frac{(\exp(x^2) - 1)(\sin x - x)^2}{(\cos x - 1)^2 \sin^4 x}$
 - $\lim_{x \rightarrow 0} \frac{1 - \cos(x^2)}{\log(1 - x^2 - x^4) - \log(1 - x^2 + x^4)}$
 - $\lim_{x \rightarrow 0} \frac{2(\sin x - \tan x) + x^3}{(e^x - 1)(\exp(-x^2) - 1)^2}$
 - $\lim_{x \rightarrow +0} \frac{1 - \sqrt{\cos x}}{(1 - \cos \sqrt{x})^2}$
 - $\lim_{x \rightarrow 0} \frac{\sin(e^{x^2} - 1) - 1 + \cos(\sqrt{2}x)}{x^4}$
 - $\lim_{x \rightarrow 0} \frac{(1 + \sin x)^x - \exp(x^2) + \frac{x^3}{2}}{x^4}$
 - $\lim_{n \rightarrow \infty} \sqrt[6]{n^5} \left(\sin\left(\frac{1}{\sqrt{n}}\right) - \frac{1}{\sqrt[6]{n}} \log\left(1 + \frac{1}{\sqrt[3]{n}}\right) \right)$
-

Limity funkcí, týden 1, cvičení 2 (23.2.2024)

Spočtěte limity.

- $\lim_{x \rightarrow 0} \frac{\cos(x) - \exp(-\frac{1}{2}x^2)}{x^4}$.
- $\lim_{x \rightarrow 0} \frac{\cosh(x) - \sqrt{\cos x}}{x^2}$.
- $\lim_{x \rightarrow 0} \frac{\sqrt[3]{1+3x} - \sqrt[4]{1+4x}}{\cos(ax) - \cos(bx)}, |a| \neq |b|$.
- $\lim_{x \rightarrow 1} (1-x) \tan \frac{\pi x}{2}$.
- $\lim_{x \rightarrow 0} \frac{\tan x - x}{\sin x - x}$.
- $\lim_{x \rightarrow \infty} \log(x(\pi - 2 \arctan x))$
- $\lim_{x \rightarrow 0} \frac{e^x - \sin x}{x^n}$
- $\lim_{x \rightarrow 0} \frac{\exp(x^2 + x) - \sin x + 3 \cos x - 4}{\arctan^3 x}$
- $\lim_{x \rightarrow 0} \frac{e^x - \sin x - 1}{x^2}$
- $\lim_{x \rightarrow 0} \frac{(\exp(x^2) - 1)(\sin x - x)^2}{(\cos x - 1)^2 \sin^4 x}$
- $\lim_{x \rightarrow 0} \frac{1 - \cos(x^2)}{\log(1 - x^2 - x^4) - \log(1 - x^2 + x^4)}$
- $\lim_{x \rightarrow 0} \frac{2(\sin x - \tan x) + x^3}{(e^x - 1)(\exp(-x^2) - 1)^2}$
- $\lim_{x \rightarrow +0} \frac{1 - \sqrt{\cos x}}{(1 - \cos \sqrt{x})^2}$
- $\lim_{x \rightarrow 0} \frac{\sin(e^{x^2} - 1) - 1 + \cos(\sqrt{2}x)}{x^4}$
- $\lim_{x \rightarrow 0} \frac{(1 + \sin x)^x - \exp(x^2) + \frac{x^3}{2}}{x^4}$
- $\lim_{n \rightarrow \infty} \sqrt[6]{n^5} \left(\sin\left(\frac{1}{\sqrt{n}}\right) - \frac{1}{\sqrt[6]{n}} \log\left(1 + \frac{1}{\sqrt[3]{n}}\right) \right)$