

L'Hospitalove pravidlá.

1. Vypočítajte limity

- a. $\lim_{x \rightarrow 0} \frac{e^{3x} - 1}{\sin 2x}$ [3/2]
 b. $\lim_{x \rightarrow 0} \frac{\operatorname{arctg} 2x}{e^{-x} - 1}$ [-2]
 c. $\lim_{x \rightarrow \pi} \frac{\cos 2x - 1}{\operatorname{tg} x}$ [0]
 d. $\lim_{x \rightarrow 0} \frac{\ln(1 + \sin x)}{\sin 4x}$ [1/4]
 e. $\lim_{x \rightarrow \infty} \frac{\ln(x^2 + 1)}{\ln(x + 1)}$ [2]
 f. $\lim_{x \rightarrow -\infty} \frac{2 - x}{e^{-x} + 1}$ [0]
 g. $\lim_{x \rightarrow 0^+} \frac{\ln x}{\operatorname{cotg} x}$ [0]

2. Vypočítajte limity

- a. $\lim_{x \rightarrow \infty} x \operatorname{arccotg} x$ [1]
 b. $\lim_{x \rightarrow 0^+} (e^x - 1) \operatorname{cotg} x$ [1]
 c. $\lim_{x \rightarrow \frac{\pi}{2}} (1 - \sin x) \operatorname{tg} x$ [0]
 d. $\lim_{x \rightarrow 0} (1 + \sin x)^{\frac{1}{x}}$ [e]
 e. $\lim_{x \rightarrow \infty} (e^{2x} - 3x^2)$ [∞]
 f. $\lim_{x \rightarrow \infty} x (\ln(x + 1) - \ln x)$ [1]
 g. $\lim_{x \rightarrow 0^+} (e^{2x} + x)^{\frac{1}{x}}$ [e^2]
 h. $\lim_{x \rightarrow 0} \frac{\cos 5x - \cos 2x}{\sin^2 x}$ [-21/2]