

Exempel: Beräkna  $\lim_{x \rightarrow 0} \frac{e^x - \sin x - \cos x}{\arctan x^2}$

$$\begin{aligned} \underline{L:} \quad & \lim_{x \rightarrow 0} \frac{e^x - \sin x - \cos x}{\arctan x^2} = \left/ \arctan t = t + O(t^3) \right/ \\ & = \lim_{x \rightarrow 0} \frac{(1 + x + \frac{x^2}{2} + O(x^3)) - (x + O(x^3)) - (1 - \frac{x^2}{2} + O(x^4))}{x^2 + O(x^6)} \\ & = \lim_{x \rightarrow 0} \frac{x^2 + O(x^3)}{x^2 + O(x^6)} = \lim_{x \rightarrow 0} \frac{1 + O(x)}{1 + O(x^4)} = \frac{1}{1} = \underline{\underline{1}}. \end{aligned}$$