

$$f(x) = \exp\left(-\frac{1}{x^2}\right) \quad \text{for } x \neq 0, \quad f(0) = 0$$

$$\boxed{f'(0) = ?}$$

$f'(0)$

$$f'(x) = \exp\left(-\frac{1}{x^2}\right) \cdot \left(-\frac{1}{x^2}\right)' = \exp\left(-\frac{1}{x^2}\right) \cdot \frac{2}{x^3}$$
$$\left(-x^{-2}\right)' = 2x^{-3}$$

ex. $\lim_{x \rightarrow x_0^+} f'(x) \Rightarrow$ je rovná $f'_+(x_0)$

$$\lim_{x \rightarrow 0} \underbrace{\exp\left(-\frac{1}{x^2}\right)}_{\downarrow 0} \cdot \underbrace{\frac{2}{x^3}}_{\downarrow \pm\infty}$$

$$\frac{2 \exp\left(-\frac{1}{x^2}\right)}{x^3} \quad \text{L'H}$$

$$= \frac{4 \exp\left(-\frac{1}{x^2}\right)}{3x^5}$$

$$\frac{\Delta \exp^2(2x)}{x^4}$$

$4x^3$

$12x^2$

$24x$

$\textcircled{24}$

$$\frac{\cancel{x^3}}{x^3}$$

$$\frac{x^{-3}}{\cancel{\text{exp}}(x^{-2})}$$

$$a^{-x} = \frac{1}{a^x}$$

$$\frac{-3x^{-4}}{\text{exp}(x^{-2}) (-2x^{-3})}$$

$$= \frac{3}{2 \text{exp}(x^{-2})} \quad ?$$