Universidade do Minho
Dep. de Matemática

Cálculo I

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Licenciatura em Engenharia Informática

Algumas regras de derivação
(estamos a omitir os domínios de definição das funções)

$C' = 0, \quad C$ constante

$(fg)'(x) = f'(x)g(x) + f(x)g'(x)$

$(g \circ f)'(x) = g'(f(x))f'(x))$

$(e^x)' = e^x$

$(a^x)' = a^x \, \log a$

$\operatorname{sen}' x = \cos x$

$\operatorname{tg}' x = \sec^2 x$

$\sec' x = \sec x \ \operatorname{tg} x$

$\operatorname{sh}' x = \operatorname{ch} x$

$\operatorname{th}' x = \operatorname{sech}^2 x$

$\operatorname{sech}' x = -\operatorname{sech} x \ \operatorname{th} x$

$\operatorname{arcsen}' x = \dfrac{1}{\sqrt{1-x^2}}$

$\operatorname{arctg}' x = \dfrac{1}{1+x^2}$

$\operatorname{arcsec}' x = \dfrac{1}{x\sqrt{x^2-1}}$

$\operatorname{argsh}' x = \dfrac{1}{\sqrt{1+x^2}}$

$\operatorname{argth}' x = \dfrac{1}{1-x^2}$

$\operatorname{argsech}' x = \dfrac{-1}{x\sqrt{1-x^2}} \quad (x<1)$

$(x^\alpha)' = \alpha \, x^{\alpha-1}, \quad (\alpha \in \mathbb{R})$

$\left(\dfrac{f}{g}\right)'(x) = \dfrac{f'(x)g(x) - f(x)g'(x)}{g^2(x)}$

$(f^{-1})'(x) = \dfrac{1}{f'(f^{-1}(x))}$

$\ln' x = \dfrac{1}{x}$

$\log_a' x = \dfrac{1}{x} \log_a e$

$\cos' x = -\operatorname{sen} x$

$\operatorname{cotg}' x = -\operatorname{cosec}^2 x$

$\operatorname{cosec}' x = -\operatorname{cosec} x \ \operatorname{cotg} x$

$\operatorname{ch}' x = \operatorname{sh} x$

$\operatorname{coth}' x = -\operatorname{cosech}^2 x$

$\operatorname{cosech}' x = -\operatorname{cosech} x \ \operatorname{coth} x$

$\operatorname{arccos}' x = \dfrac{-1}{\sqrt{1-x^2}}$

$\operatorname{arcotg}' x = \dfrac{-1}{1+x^2}$

$\operatorname{arcosec}' x = \dfrac{-1}{x\sqrt{x^2-1}}$

$\operatorname{argch}' x = \dfrac{1}{\sqrt{x^2-1}}$

$\operatorname{argcoth}' x = \dfrac{1}{1-x^2}$

$\operatorname{argcosech}' x = \dfrac{-1}{x\sqrt{1+x^2}}$