Cálculo

Regras de derivação

(Omitem-se os domínios das funções e considera-se a uma constante apropriada.)

$$(a^x)' = a^x \ln a \qquad\qquad (x^a)' = a\, x^{a-1}$$

$$(a^x)' = a^x \ln a \qquad\qquad \log_a' x = \frac{1}{x \ln a}$$

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

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

$$\sec' x = \sec x\, \operatorname{tg} x \qquad\qquad \operatorname{cosec}' x = -\operatorname{cosec} x\, \operatorname{cotg} x$$

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

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

$$\operatorname{sech}' x = -\operatorname{sech} x\, \operatorname{th} x \qquad\qquad \operatorname{cosech}' x = -\operatorname{cosech} x\, \operatorname{coth} x$$

$$\operatorname{arcsen}' x = \frac{1}{\sqrt{1-x^2}} \qquad\qquad \operatorname{arccos}' x = \frac{-1}{\sqrt{1-x^2}}$$

$$\operatorname{arctg}' x = \frac{1}{1+x^2} \qquad\qquad \operatorname{arccotg}' x = \frac{-1}{1+x^2}$$

$$\operatorname{arcsec}' x = \frac{1}{x\sqrt{x^2-1}} \qquad\qquad \operatorname{arccosec}' x = \frac{-1}{x\sqrt{x^2-1}}$$

$$\operatorname{argsh}' x = \frac{1}{\sqrt{1+x^2}} \qquad\qquad \operatorname{argch}' x = \frac{1}{\sqrt{x^2-1}}$$

$$\operatorname{argth}' x = \frac{1}{1-x^2} \qquad\qquad \operatorname{argcth}' x = \frac{1}{1-x^2}$$

$$\operatorname{argsech}' x = \frac{-1}{x\sqrt{1-x^2}} \qquad\qquad \operatorname{argcosech}' x = \frac{-1}{x\sqrt{1+x^2}}$$

Recorda-se ainda que $a' = 0$ e

$$(g \circ u)'(x) = g'(u(x))\, u'(x) \qquad\Big|\qquad (f^{-1})'(y) = \frac{1}{f'(f^{-1}(y))}$$