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Bases Matemáticas

Derivadas

- $(cf)' = cf'$
- $(f+g)' = f' + g'$
- $(fg)' = f'g + fg'$
- $\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2}$
- $(f \circ g)' = (f' \circ g)g'$

- $\frac{d}{dx}c = 0$
- $\frac{d}{dx}x = 1$
- $\frac{d}{dx}cx = c$
- $\frac{d}{dx}x^c = cx^{c-1}$
- $\frac{d}{dx}\left(\frac{1}{x}\right) = \frac{d}{dx}\left(x^{-1}\right) = -x^{-2} = -\frac{1}{x^2}$
- $\frac{d}{dx}\left(\frac{1}{x^c}\right) = \frac{d}{dx}\left(x^{-c}\right) = -\frac{c}{x^{c+1}}$
- $\frac{d}{dx}\sqrt{x} = \frac{d}{dx}x^{\frac{1}{2}} = \frac{1}{2}x^{-\frac{1}{2}} = \frac{1}{2\sqrt{x}}, \qquad x > 0$

- $\frac{d}{dx}\operatorname{sin} x = \operatorname{cos} x$, ou, dito de outra maneira, $\operatorname{sen}' = \operatorname{cos}$;
- $\frac{d}{dx}\operatorname{cos} x = -\operatorname{sen}\ x$, ou, dito de outra maneira, $\operatorname{cos}' = -\operatorname{sen}$
- $\frac{d}{dx}\ \operatorname{tg}\ x = \operatorname{sec}^2 x = \frac{1}{\operatorname{cos}^2 x}$
- $\frac{d}{dx}\operatorname{sec} x = \ \operatorname{tg}\ x \operatorname{sec} x$
- $\frac{d}{dx}\ \operatorname{cotg}\ x = -\operatorname{cossec}\ ^2 x = \frac{-1}{\operatorname{sen}^2 x}$,
- $\frac{d}{dx}\ \operatorname{cossec}\ x = -\operatorname{cossec}\ x\ \operatorname{cotg}\ x$

- $\frac{d}{dx}\ \text{arcsen}\ x = \frac{1}{\sqrt{1-x^2}}$
- $\frac{d}{dx}\ \text{arccos}\, x = \frac{-1}{\sqrt{1-x^2}}.$
- $\frac{d}{dx}\ \text{arctg}\ x = \frac{1}{1+x^2}.$
- $\frac{d}{dx} arcsecx = \frac{1}{|x|\sqrt{x^2-1}}.$
- $\frac{d}{dx}\ \text{arccotg}\ x = \frac{-1}{1+x^2}.$
- $\frac{d}{dx}\ \text{arccossec}\ x = \frac{-1}{|x|\sqrt{x^2-1}}$

- $\frac{d}{dx}e^x = e^x$
- $\frac{d}{dx}\ln(x) = \frac{1}{x}$
- $\frac{d}{dx}a^x = ln(a)a^x$

$$\frac{d}{dx}\ \text{senh}\ x = \cosh x = \frac{e^x + e^{-x}}{2}$$
$$\frac{d}{dx}\cosh x = \ \text{senh}\ x = \frac{e^x - e^{-x}}{2}$$
$$\frac{d}{dx}\ \text{tgh}\ x = \text{sech}^2\, x$$