Cálculo I - Agrupamento IV

2018/2019

Formulário

Derivadas

$(f(x)^p)' = p\ (f(x))^{p-1}\ f'(x)$, com $p \in \mathbb{R}$	
$\left(a^{f(x)}\right)' = f'(x) a^{f(x)} \ln(a)$, com $a \in \mathbb{R}^+ \setminus \{1\}$	$(\log_a(f(x)))' = \dfrac{f'(x)}{f(x)\ln(a)}$, com $a \in \mathbb{R}^+ \setminus \{1\}$
$(\mathrm{sen}\,(f(x)))' = f'(x)\cos(f(x))$	$(\cos(f(x)))' = -f'(x)\mathrm{sen}\,(f(x))$
$(\mathrm{tg}\,(f(x)))' = f'(x)\sec^2(f(x))$	$(\mathrm{cotg}\,(f(x)))' = -f'(x)\mathrm{cosec}^2(f(x))$
$(\sec(f(x)))' = f'(x)\sec(f(x))\mathrm{tg}\,(f(x))$	$(\mathrm{cosec}\,(f(x)))' = -f'(x)\mathrm{cosec}\,(f(x))\mathrm{cotg}\,(f(x))$
$(\mathrm{arcsen}\,(f(x)))' = \dfrac{f'(x)}{\sqrt{1-(f(x))^2}}$	$(\arccos(f(x)))' = -\dfrac{f'(x)}{\sqrt{1-(f(x))^2}}$
$(\mathrm{arctg}\,(f(x)))' = \dfrac{f'(x)}{1+(f(x))^2}$	$(\mathrm{arccotg}\,(f(x))' = -\dfrac{f'(x)}{1+(f(x))^2}$

Fórmulas trigonométricas

- $1 + \mathrm{tg}^2(x) = \sec^2(x)$, para $x \neq \frac{\pi}{2} + k\pi$, $k \in \mathbb{Z}$
- $1 + \mathrm{cotg}^2(x) = \mathrm{cosec}^2(x)$, para $x \neq k\pi$, $k \in \mathbb{Z}$
- $\cos(x \pm y) = \cos x \cos y \mp \mathrm{sen}\,x \mathrm{sen}\,y$
- $\mathrm{sen}\,(x \pm y) = \mathrm{sen}\,x \cos y \pm \cos x \mathrm{sen}\,y$
- $\cos^2(x) = \frac{1+\cos(2x)}{2}$
- $\mathrm{sen}^2(x) = \frac{1-\cos(2x)}{2}$