

Definição

$$f'(x) = \lim (f(x_0+h) - f(x_0))/h$$

Df'(x) c Df(x)

Derivada em um ponto

$$g'(x) = \lim (g(x) - g(x_0)) / (x - x_0)$$

P = (x₀, y₀)

Reta tangente à g(x) em um ponto P

1. achar derivada g'(x)
de g(x)

2. achar m m = lim da derivada
em P

3. substituir P na eq da reta tangente

Reta Tangente

$$y - y_0 = m (x - x_0) \quad P = (x_0, y_0)$$

Reta Normal

$$y - y_0 = (-1/m) (x - x_0)$$

Regras de Derivação

k 0

xⁿ n.xⁿ⁻¹

k.f(x) k.f'(x)

f(x) +- g(x) f'(x) +- g'(x)

f(x).g(x) f'(x).g(x) + f(x).g'(x)

f(x)/g(x) (f'(x).g(x) - f(x).g'(x))/(f(x))^2

Log e exponencial

log a (x) 1 / (ln a).x

a^x a^x (ln a)

ln x 1/x

e^x e^x

Trigonométricas

sen(x) cos(x)

cos(x) - sen(x)

tg(x) sec²

cotg(x) - cossec²

sec(x) sec(x).tg(x)

cossec(x) - cossec(x).cotg(x)

Trigonométricas Inversas

arcsen(x) 1 / (1-x²)^{1/2}

arccos(x) -1 / (1-x²)^{1/2}

Trigonométricas Inversas

arctg(x) 1 / 1+x²

arccotg(x) -1 / 1+x²

Regra da Cadeia

1. para função composta

2. separe as funções externa e interna

3. derive externa e interna

$$f(g(x)) = f'(g(x)).g'(x)$$

NOTAS

rad	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$	$\frac{2\pi}{3}$	$\frac{3\pi}{4}$	$\frac{5\pi}{6}$	π	$\frac{3\pi}{2}$	2π
degree	0°	30°	45°	60°	90°	120°	135°	150°	180°	270°	360°
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	-1	0
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	$-\frac{1}{2}$	$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{3}}{2}$	-1	0	1
tg	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	-	$-\sqrt{3}$	-1	$-\frac{\sqrt{3}}{3}$	0	-	0
ctg	-	$\sqrt{3}$	1	$\frac{\sqrt{3}}{3}$	0	$\frac{\sqrt{3}}{3}$	-1	$-\sqrt{3}$	0	-	-

Implícita

1. derive x normalmente

2. derive y como se fosse uma composta
(cadeia)

3. isole y'

C

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cheatography.com/zulle/

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