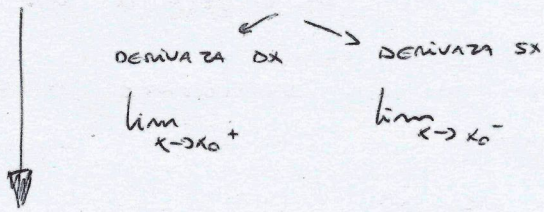


DERIVATE

RAPPORTO INCREMENTALE: $\lim_{x \rightarrow x_0} \frac{f(x) - f(x_0)}{x - x_0} = f'(x_0)$

Se $f(x) \in \mathbb{R}$ FINITO x_0 si dice DERIVABILE



$$\lim_{h \rightarrow 0} \frac{f(x_0+h) - f(x_0)}{h} = f'(x_0)$$

1. $D \cos t = 0$

2. $D x^q = q x^{q-1}$

3. $D \sin x = \cos x$ $D \cos x = -\sin x$

4. $D e^x = e^x \ln e$

5. $D \log_e x = \frac{1}{x} \log_e e$

6. $D \operatorname{tg} x = \frac{1}{\cos^2 x}$ $D \operatorname{cctg} x = -\frac{1}{\sin^2 x}$

7. $D |x| = \frac{x}{|x|} = \frac{|x|}{x}$ Se $x \neq 0$.

8. $\sqrt[n]{x} = \frac{1}{\sqrt[n]{x^{n-1}}}$

9. $D \operatorname{arcsin} x = \frac{1}{\sqrt{1-x^2}}$ $D \operatorname{arccos} x = -\frac{1}{\sqrt{1-x^2}}$

10. $D \operatorname{arctg} x = \frac{1}{1+x^2}$ $D \operatorname{arcctg} x = -\frac{1}{1+x^2}$

$f+g = f'+g'$

$D(f+g)(x) = Df(x) + Dg(x)$

$f \cdot g = f' \cdot g + f \cdot g'$

$D(f \cdot g)(x) = Df(x) \cdot g(x) + f(x) \cdot Dg(x)$

$f/g = \frac{f'g - f \cdot g'}{g^2}$

$D\left(\frac{f}{g}\right)(x) = \frac{Df(x) \cdot g(x) - Dg(x) \cdot f(x)}{[g(x)]^2}$

$D(f \circ g)(x) = Df(g(x)) \cdot Dg(x)$

SIGNIFICATO GEOMETRICO DERIVATA.

↓

COEFFICIENTE ANGOLARE DELLA π TANGENTE A F IN (x_0, y_0) .

$$y - y_0 = f'(x) \cdot (x - x_0)$$