SchoolEasy

Appunti facili per tutti

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✈ t.me/schooleasy

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Due derivate al volo con i logaritmi

DUE DERIVATE AL VOLO

$y = \ln\left(\sin^2 x\right)$

$\downarrow$

$y' = \dfrac{1}{\sin^2 x} \cdot 2\sin x \cdot \cos x = \dfrac{2\sin x \cdot \cos x}{\sin^2 x}$

$\downarrow$

$y' = \dfrac{2\cos x}{\sin x} = 2\cot x$

$D\ln(x) = \dfrac{1}{x} \cdot x' = \dfrac{1}{x}$

$D\ln(x^2) = \dfrac{1}{x^2} \cdot 2x = \dfrac{2}{x}$
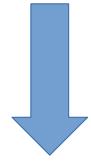
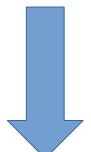$Dx^{\alpha} = \alpha\, x^{\alpha-1}$

$D\sin(x) = \cos(x)$

$D\sin^2(x) = 2\sin x \cdot \cos x$

DUE DERIVATE AL VOLO

$$y = \ln \frac{x^2 - 1}{2x + 3}$$

↓

$$y' = \frac{1}{\frac{x^2 - 1}{2x + 3}} \cdot (.)'$$

$$\left(\frac{x^2 - 1}{2x + 3}\right)' = \frac{2x(2x + 3) - (x^2 - 1)2}{(2x + 3)^2}$$

↓

$$y' = \frac{1}{\frac{x^2 - 1}{2x + 3}} \cdot \frac{2x(2x + 3) - (x^2 - 1)2}{(2x + 3)^2} = \frac{2(x^2 + 3x + 1)}{(x^2 - 1)(2x + 3)}$$

$$D\ln(x) = \frac{1}{x} \cdot x' = \frac{1}{x}$$

$$D\ln(x^2) = \frac{1}{x^2} \cdot 2x = \frac{2}{x}$$

$$D\frac{f(x)}{g(x)} = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{g^2(x)}$$

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