Tabla de integrales y derivadas

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Reglas de derivadas

$$(f(x)\pm g(x))=f'(x)\pm g'(x)$$

$$(k\cdot f(x))'=k\cdot f'(x)$$

$$(f(x)\cdot g(x))'=f'(x)\cdot g(x)+f(x)\cdot g'(x)$$

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

Tabla de derivadas

x = incógnita ; k = constante ; u,v,w = expresión mas compleja / funciones

$$k'=0$$

$$x'=1$$

$$k\cdot x'=k$$

$$(u^n)'=n\cdot u^{n-1}\cdot u'$$

$$x^n{}'=n\,x^{n-1}$$

$$e^x{}'=e^x$$

$$k^x{}'=k^x\cdot\ln k$$

$$\ln x'=\frac{1}{x}$$

$$\log_a x'=\frac{1}{x\cdot\ln a}$$

$$e^u{}'=e^u\cdot u'$$

$$\sqrt{x}'=\frac{1}{2\sqrt{x}}$$

$$sen\,x'=\cos x$$

$$\cos x'=-sen\,x$$

$$(k\cdot u)'=k\cdot u'$$

$$\ln u'=\frac{1}{u}\cdot u'$$

$$\tan x'=\frac{1}{\cos^2 x}=sec^2 x$$

$$arcsen\,x'=\frac{1}{\sqrt{1-x^2}}$$

$$\arccos x'=\frac{-1}{\sqrt{1-x^2}}$$

$$\arctan x'=\frac{1}{x^2+1}$$

$$u\cdot v\cdot w'=u'vw+uv'w+uvw'$$

$$\frac{1}{u}=\frac{-1}{u^2}\cdot u'$$

$$\frac{u}{v}=\frac{u'v-uv'}{v^2}$$

Tabla de Integrales

$$\int x^a\,dx=\frac{x^{a+1}}{a+1}\quad a\neq -1$$

$$\int dx=x$$

$$\int k\,dx=k\,x \quad \text{(las constantes "salen")}$$

$$\int \frac{1}{x}dx=\ln|x| \quad \text{(ídem x^-1)}$$

$$\int k\,f(x)\,dx=k\int f(x)\,dx \quad \text{(constantes "salen")}$$

$$\int e^{kx}\,dx=\frac{e^{kx}}{k}+c$$

$$\int a^x\,dx=\frac{a^x}{\ln a}$$

$$\int [f(x)\pm g(x)]dx=\int f(x)dx\pm\int g(x)\,dx$$

$$\int x^{-1}\,dx=\ln|x|$$

$$\int e^x\,dx=e^x$$

$$\int \ln x\,dx=x\ln x-x$$

$$\int \sin x\,dx=-\cos x$$

$$\int \cos x\,dx=\sin x$$

$$\int \tan x\,dx=\ln|sec\,x|$$

$$\int \cot x\,dx=-\ln|csc\,x|=\ln|\sin x|$$

$$\int sec\,x\,dx=\ln|sec\,x+\tan x|$$

$$\int csc\,x\,dx=-\ln|csc\,x+\cot x|=\ln|csc\,x-\cot x|$$

$$\int \frac{dx}{\cos^2 x}=tg\,x$$

$$\int \frac{dx}{sen^2 x}dx=-cotg\,x$$

$$\int \frac{1}{\sqrt{1-x^2}}dx=arcsen\,x$$

$$\int \frac{-1}{\sqrt{1-x^2}}dx=\arccos x$$

$$\int \frac{1}{1+x^2}dx=arctg\,x$$