TABLA DE DERIVADAS

TIPO	FUNCIÓN	DERIVADA	EJEMPLOS
Potencial	$y = x^a$ $y = f^a$	$y' = ax^{a-1}$ $y' = af^{a-1}.f'$	$f(x) = (2x+5)^4$ $f'(x) = 4(2x+5)^3.2 = 8(2x+5)^3$
Raíz cuadrada	$y = \sqrt{x}$	$y' = \dfrac{1}{2\sqrt{x}}$	$f(x) = \sqrt{x^2 - 3x}$
	$y = \sqrt{f}$	$y' = \dfrac{f'}{2\sqrt{f}}$	$f'(x) = \dfrac{2x-3}{2\sqrt{x^2-3x}}$
Exponencial	$y = e^x$	$y' = e^x$	$f(x) = e^{4x-3}$
	$y = e^f$	$y' = f'.e^f$	$f'(x) = 4.e^{4x-3}$
	$y = a^x$	$y' = a^x.\log a$	$g(x) = 5^{x^2+x}$
	$y = a^f$	$y' = f'.a^f.\log a$	$g'(x) = (2x+1).5^{x^2+x}.\log 2$
Logaritmo neperiano	$y = \log x$	$y = \dfrac{1}{x}$	$f(x) = \log(2x^3 + 5x)$
	$y = \log f$	$y' = \dfrac{f'}{f}$	$f'(x) = \dfrac{6x^2+5}{2x^3+5x}$
Seno	$y = senx$	$y' = \cos x$	$f(x) = sen(x^2 + x)$
	$y = senf$	$y' = f'.\cos f$	$f'(x) = (2x+1).\cos(x^2+x)$
Coseno	$y = \cos x$	$y' = -senx$	$f(x) = \cos 5x$
	$y = \cos f$	$y' = f'(-senf)$	$f'(x) = 5.(-sen5x) = -5sen5x$
Tangente	$y = tgx$	$y' = \dfrac{1}{\cos^2 x} = 1 + tg^2 x$	$f(x) = tg5x$ $f'(x) = 5.\dfrac{1}{tg^2 5x} = \dfrac{5}{tg^2 5x}$
	$y = tgf$	$y' = f'.\dfrac{1}{\cos^2 f} = f'.(1 + tg^2 f)$	O bien $f'(x) = 5.(1 + tg^2 5x)$
Cotangente	$y = ctgx$	$y = \dfrac{-1}{sen^2 x}$	$f(x) = ctg\, e^{3x}$
	$y = ctgf$	$y' = f'.\dfrac{-1}{sen^2 f}$	$f'(x) = 3e^{3x}.\dfrac{-1}{sen^2 e^{3x}} = \dfrac{-3e^{3x}}{sen^2 e^{3x}}$

DERIVADAS DE OPERACIONES CON FUNCIONES

Suma o resta	$(f \pm g)' = f' \pm g'$	$f(x) = 5x^2 + e^{3x} - senx$ $f'(x) = 10x + 3e^{3x} - \cos x$
Producto	$(f.g)' = f'.g + g'.f$	$f(x) = e^x senx$ $f'(x) = e^x.senx + \cos x.e^x = e^x(senx + \cos x)$
Cociente	$\left(\dfrac{f}{g}\right)' = \dfrac{f'.g - g'.f}{g^2}$	$f(x) = \dfrac{2x+1}{2x-1}$ $f'(x) = \dfrac{2(2x-1) - 2(2x+1)}{(2x-1)^2} = \dfrac{4x-2-4x-2}{(2x-1)^2} = \dfrac{-4}{(2x-1)^2}$