

Tabla de Derivadas

Tipo	Función simple		Función compuesta	
Constante	$f(x) = k, k \in \mathbb{R}$	$f'(x) = 0$		
Identidad	$f(x) = x$	$f'(x) = 1$		
Potencial	$f(x) = x^n$	$f'(x) = nx^{n-1}$	$g(x) = f(x)^n$	$g'(x) = nf(x)^{n-1} \cdot f'(x)$
Irracional	$f(x) = \sqrt[n]{x}$	$f'(x) = \frac{1}{n\sqrt[n]{x^{n-1}}}$	$g(x) = \sqrt[n]{f(x)}$	$g'(x) = \frac{f'(x)}{n\sqrt[n]{f(x)^{n-1}}}$
Exponencial	$f(x) = e^x$	$f'(x) = e^x$	$g(x) = e^{f(x)}$	$g'(x) = e^{f(x)} \cdot f'(x)$
	$f(x) = a^x$	$f'(x) = a^x \ln a$	$g(x) = a^{f(x)}$	$g'(x) = a^{f(x)} \cdot f'(x) \cdot \ln a$
Potencial exponencial	$h(x) = f(x)^{g(x)}$	$h'(x) = \underbrace{g(x) \cdot f(x)^{g(x)-1} \cdot f'(x)}_{\text{potencial}} + \underbrace{f(x)^{g(x)} \cdot g'(x) \cdot \ln f(x)}_{\text{exponencial}}$		
Logarítmica	$f(x) = \ln(x)$	$f'(x) = \frac{1}{x}$	$g(x) = \ln(f(x))$	$g'(x) = \frac{f'(x)}{f(x)}$
	$f(x) = \log_a(x)$	$f'(x) = \frac{1}{x \cdot \ln a}$	$g(x) = \log_a(f(x))$	$g'(x) = \frac{f'(x)}{f(x) \cdot \ln a}$

Trigonométricas

Seno	$f(x) = \text{sen}(x)$	$f'(x) = \text{cos}(x)$	$g(x) = \text{sen}(f(x))$	$g'(x) = \text{cos}(f(x)) \cdot f'(x)$
Coseno	$f(x) = \text{cos}(x)$	$f'(x) = -\text{sen}(x)$	$g(x) = \text{cos}(f(x))$	$g'(x) = -\text{sen}(f(x)) \cdot f'(x)$
Tangente	$f(x) = \text{tg}(x)$	$f'(x) = 1 + \text{tg}^2(x) = \frac{1}{\text{cos}^2(x)} = \text{sec}^2(x)$	$g(x) = \text{tg}(f(x))$	$g'(x) = (1 + \text{tg}^2(f(x))) \cdot f'(x) = \frac{f'(x)}{\text{cos}^2(f(x))} = \text{sec}^2(f(x)) \cdot f'(x)$
Arco seno	$f(x) = \text{arcsen}(x)$	$f'(x) = \frac{1}{\sqrt{1-x^2}}$	$g(x) = \text{arcsen}(f(x))$	$g'(x) = \frac{f'(x)}{\sqrt{1-f(x)^2}}$
Arco coseno	$f(x) = \text{arc cos}(x)$	$f'(x) = \frac{-1}{\sqrt{1-x^2}}$	$g(x) = \text{arc cos}(f(x))$	$g'(x) = \frac{-f'(x)}{\sqrt{1-f(x)^2}}$
Arco tangente	$f(x) = \text{arctg}(x)$	$f'(x) = \frac{1}{1+x^2}$	$g(x) = \text{arctg}(f(x))$	$g'(x) = \frac{f'(x)}{1+f(x)^2}$

REGLAS DE DERIVACIÓN

Suma	$(f(x) + g(x))' = f'(x) + g'(x)$
Resta	$(f(x) - g(x))' = f'(x) - g'(x)$
Producto	$(f(x) \cdot g(x))' = f'(x) \cdot g(x) + f(x) \cdot g'(x)$
Cociente	$\left(\frac{f(x)}{g(x)}\right)' = \frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{g(x)^2}$
Producto por un número	$(af(x))' = a \cdot f'(x)$
Composición	$[g(f(x))]' = g'(f(x)) \cdot f'(x)$

