

## OPERACIONES CON FUNCIONES DERIVADAS

Suma	$(f + g)' = f' + g'$
Producto por un escalar	$(k \cdot f)' = k \cdot f'$
Producto	$(f \cdot g)' = f' \cdot g + f \cdot g'$
Cociente	$\left(\frac{f}{g}\right)' = \frac{f' \cdot g - f \cdot g'}{g^2}$
Composición	$(f \circ g)' = g'(f) \cdot f'$

## TABLA DE DERIVADAS

Función		Derivada simple	Derivada compuesta
Constante	$f(x) = K$	$f'(x) = 0, k \in \mathfrak{R}$	
Identidad	$f(x) = x$	$f'(x) = 1$	
Potencial	$f(x) = x^a$	$f'(x) = a \cdot x^{a-1}$	$(f^a)' = a \cdot f^{a-1}$
Irrracional	$f(x) = \sqrt[n]{x}$	$f'(x) = \frac{1}{n \cdot \sqrt[n]{x^{n-1}}}$	$(\sqrt[n]{f})' = \frac{f'}{n \cdot \sqrt[n]{f^{n-1}}}$
Exponencia 	$f(x) = e^x$	$f'(x) = e^x$	$(e^f)' = e^f \cdot f'$
	$f(x) = a^x$	$f'(x) = a^x \cdot \ln a$	$(a^f)' = a^f \cdot \ln a \cdot f'$
Logarítmica	$f(x) = \ln x$	$f'(x) = \frac{1}{x}$	$(\ln f)' = \frac{f'}{f}$
	$f(x) = \log_a x$	$f'(x) = \frac{1}{x \cdot \ln a}$	$(\log_a f)' = \frac{f'}{f \cdot \ln a}$
Exponencia   potencial	$f(x)^{g(x)}$	$(f(x)^{g(x)})' = f^g \cdot \ln f \cdot g' + g \cdot f^{g-1} \cdot f'$	
seno	$f(x) = \operatorname{sen} x$	$f'(x) = \cos x$	$(\operatorname{sen} f)' = \cos f \cdot f'$
coseno	$f(x) = \cos x$	$f'(x) = -\operatorname{sen} x$	$(\cos f)' = -\operatorname{sen} f \cdot f'$
tangente	$f(x) = \operatorname{tg} x$	$f'(x) = 1 + \operatorname{tg}^2 x = \frac{1}{\cos^2 x}$	$(\operatorname{tg} f)' = (1 + \operatorname{tg}^2 f) \cdot f' = \frac{f'}{\cos^2 f}$
cotangente	$f(x) = \operatorname{cot} x$	$f'(x) = -1 - \operatorname{cot}^2 x = \frac{-1}{\operatorname{sen}^2 x}$	$(\operatorname{cot} f)' = (-1 - \operatorname{cot}^2 f) \cdot f' = \frac{-f'}{\operatorname{sen}^2 f}$
arco seno	$f(x) = \operatorname{arcsen} x$	$f'(x) = \frac{1}{\sqrt{1-x^2}}$	$(\operatorname{arcsen} f)' = \frac{f'}{\sqrt{1-f^2}}$
arco tangente	$f(x) = \operatorname{arctg} x$	$f'(x) = \frac{1}{1+x^2}$	$(\operatorname{arctg} f)' = \frac{f'}{1+f^2}$