

LISTA DE DERIVADAS COMPUESTAS

Funciones elementales		Funciones compuestas	
Función $f(x)$	Derivada $f'(x)$	Función $f(u)$ con $u = u(x)$	Derivada $f'(x) = f'(u) \cdot u'(x)$
$f(x) = k$	$f'(x) = 0$		
$f(x) = x$	$f'(x) = 1$		
$f(x) = x^p \quad p \in \mathbb{R}$	$f'(x) = px^{p-1}$	$f(u) = u^p \quad p \in \mathbb{R}$	$f'(u) = pu^{p-1}u'$
$f(x) = \ln x$	$f'(x) = \frac{1}{x}$	$f(x) = \ln u$	$f'(x) = \frac{u'}{u}$
$f(x) = \log_a x$	$f'(x) = \frac{1}{x \ln a}$	$f(x) = \log_a u$	$f'(x) = \frac{u'}{u \ln a}$
$f(x) = e^x$	$f'(x) = e^x$	$f(u) = e^u$	$f'(u) = e^u u'$
$f(x) = a^x$	$f'(x) = a^x \ln a$	$f(u) = a^u$	$f'(u) = a^u \ln a u'$
$f(x) = \sin x$	$f'(x) = \cos x$	$f(x) = \sin u$	$f'(x) = \cos u u'$
$f(x) = \cos x$	$f'(x) = -\sin x$	$f(x) = \cos u$	$f'(x) = -\sin u u'$
$f(x) = \operatorname{tg} x$	$f'(x) = \frac{1}{\cos^2 x} = 1 + \operatorname{tg}^2 x$	$f(x) = \operatorname{tg} u$	$f'(x) = \frac{u'}{\cos^2 u} = (1 + \operatorname{tg}^2 u) u'$
$f(x) = \arcsen x$	$f'(x) = \frac{1}{\sqrt{1-x^2}}$	$f(x) = \arcsen u$	$f'(x) = \frac{u'}{\sqrt{1-u^2}}$
$f(x) = \arccos x$	$f'(x) = \frac{-1}{\sqrt{1-x^2}}$	$f(x) = \arccos u$	$f'(x) = \frac{-u'}{\sqrt{1-u^2}}$
$f(x) = \operatorname{arctg} x$	$f'(x) = \frac{1}{1+x^2}$	$f(x) = \operatorname{arctg} u$	$f'(x) = \frac{u'}{1+u^2}$