

Tabla de derivadas

Funciones

Nombre	Función	Derivada
Constante	$y=k$	$y'=0$
Identidad	$y=x$	$y'=1$
Potencia	$y=x^n$	$y'=nx^{n-1}$
	$y=\frac{1}{x}$	$y'=-\frac{1}{x^2}$
	$y=\sqrt{x}$	$y'=\frac{1}{2\sqrt{x}}$
	$y=\sqrt[n]{x}$	$y'=\frac{1}{n\sqrt[n]{x^{n-1}}}$
Logaritmo	$y=\ln x$	$y'=\frac{1}{x}$
	$y=\log_a x$	$y'=\frac{1}{\ln a} \cdot \frac{1}{x}$
Exponencial	$y=e^x$	$y'=e^x$
	$y=a^x$	$y'=\ln a \cdot a^x$
Seno	$y=\operatorname{sen} x$	$y'=\operatorname{cos} x$
Coseno	$y=\operatorname{cos} x$	$y'=-\operatorname{sen} x$
Tangente	$y=\operatorname{tg} x$	$y'=\operatorname{sec}^2 x$
Arcoseno	$y=\operatorname{arcsen} x$	$y'=\frac{1}{\sqrt{1-x^2}}$
Arcocoseno	$y=\operatorname{arccos} x$	$y'=-\frac{1}{\sqrt{1-x^2}}$
Arcotangente	$y=\operatorname{arctg} x$	$y'=\frac{1}{1+x^2}$

Operaciones

Nombre	Función	Derivada
Suma, dif.	$y=f(x) \pm g(x)$	$y'=f'(x) \pm g'(x)$
Producto	$y=f(x) \cdot g(x)$	$y'=f'(x) \cdot g(x) + f(x) \cdot g'(x)$
	$y=f(x) \cdot g(x) \cdot h(x)$	$y'=f'(x) \cdot g(x) \cdot h(x) + f(x) \cdot g'(x) \cdot h(x) + f(x) \cdot g(x) \cdot h'(x)$
	$y=k \cdot f(x)$	$y'=k \cdot f'(x)$
Cociente	$y=\frac{f(x)}{g(x)}$	$y'=\frac{f'(x) \cdot g(x) - f(x) \cdot g'(x)}{[g(x)]^2}$
	$y=\frac{f(x)}{k}$	$y'=\frac{f'(x)}{k}$
Composición	$y=g(f(x))$	$y'=g'(f(x)) \cdot f'(x)$

Ejemplos

Función	Derivada
$y=(x^3+x^2)e^{2x}$	$y'=(3x^2+2x)e^{2x}+(x^3+x^2)2e^{2x}$
$y=(x^3-2x^2+7)^4$	$y'=4(x^3-2x^2+7)^3(3x^2-4x)$
$y=\sqrt{\operatorname{cos} 5x}$	$y'=\frac{1}{2\sqrt{\operatorname{cos} 5x}}(-\operatorname{sen} 5x)5$
$y=\operatorname{arcsen} 9^x$	$y'=\frac{1}{\sqrt{1-(9^x)^2}} \ln 9 \cdot 9^x$
$y=\frac{5\operatorname{tg}(x^2+6)}{7}$	$y'=\frac{5\operatorname{sec}^2(x^2+6) \cdot 2x}{7}$
$y=\frac{x+\ln x}{x+1}$	$y'=\frac{(1+\frac{1}{x})(x+1)-(x+\ln x)}{(x+1)^2}$

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Nombre	Función	Derivada
Constante	$y = k$	$y' = 0$
Identidad	$y = x$	$y' = 1$
	$y = x^n$	$y' = nx^{n-1}$
	$y = \frac{1}{x}$	$y' = -\frac{1}{x^2}$
Potencia	$y = \sqrt{x}$	$y' = \frac{1}{2\sqrt{x}}$
	$y = \sqrt[n]{x}$	$y' = \frac{1}{n\sqrt[n]{x^{n-1}}}$
	$y = \ln x$	$y' = \frac{1}{x}$
Logaritmo	$y = \log_a x$	$y' = \frac{1}{\ln a} \cdot \frac{1}{x}$
	$y = e^x$	$y' = e^x$
Exponencial	$y = a^x$	$y' = \ln a \cdot a^x$
	$y = \operatorname{sen} x$	$y' = \operatorname{cos} x$
	$y = \operatorname{cos} x$	$y' = -\operatorname{sen} x$
	$y = \operatorname{tg} x$	$y' = \operatorname{sec}^2 x$
	$y = \operatorname{arcsen} x$	$y' = \frac{1}{\sqrt{1-x^2}}$
	$y = \operatorname{arccos} x$	$y' = \frac{-1}{\sqrt{1-x^2}}$
	$y = \operatorname{arctg} x$	$y' = \frac{1}{1+x^2}$

Operaciones

Nombre	Función	Derivada
Suma, dif.	$y = f(x) \pm g(x)$	$y' = f'(x) \pm g'(x)$
	$y = f(x) \cdot g(x)$	$y' = f'(x)g(x) + f(x)g'(x)$
Producto	$y = f(x) \cdot g(x) \cdot h(x)$	$y' = f'(x)g(x)h(x) + f(x)g'(x)h(x) + f(x)g(x)h'(x)$
	$y = k \cdot f(x)$	$y' = k \cdot f'(x)$
Cociente	$y = \frac{f(x)}{g(x)}$	$y' = \frac{f'(x)g(x) - f(x)g'(x)}{[g(x)]^2}$
	$y = \frac{f(x)}{k}$	$y' = \frac{f'(x)}{k}$
Composición	$y = g(f(x))$	$y' = g'(f(x)) \cdot f'(x)$

Ejemplos

Función	Derivada
$y = (x^3 + x^2)e^{2x}$	$y' = (3x^2 + 2x)e^{2x} + (x^3 + x^2)2e^{2x}$
$y = (x^3 - 2x^2 + 7)^4$	$y' = 4(x^3 - 2x^2 + 7)^3(3x^2 - 4x)$
$y = \sqrt{\operatorname{cos} 5x}$	$y' = \frac{1}{2\sqrt{\operatorname{cos} 5x}}(-\operatorname{sen} 5x)5$
$y = \operatorname{arcsen} 9^x$	$y' = \frac{1}{\sqrt{1-(9^x)^2}} \ln 9 \cdot 9^x$
$y = \frac{5 \operatorname{tg}(x^2 + 6)}{7}$	$y' = \frac{5 \operatorname{sec}^2(x^2 + 6) \cdot 2x}{7}$
$y = \frac{x + \ln x}{x + 1}$	$y' = \frac{(1 + \frac{1}{x})(x+1) - (x + \ln x)}{(x+1)^2}$

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Nombre	Función	Derivada
Suma, dif.	$(x)g \pm (x)f = A$	$(x)g' \pm (x)f' = A'$
Producto	$(x)g \cdot (x)f = A$	$(x)g'(x)f + (x)g \cdot (x)f' = A'$
	$(x)g \cdot (x)f \cdot (x)h = A$	$(x)g'(x)fh + (x)g \cdot (x)h'(x) + (x)g \cdot (x)f \cdot (x)h' = A'$
	$(x)g \cdot (x)f = A$	$y' = k \cdot f'(x)$
Cociente	$\frac{(x)g}{(x)f} = A$	$\frac{(x)g'f - (x)g \cdot (x)f'}{(x)f^2} = A'$
Composición	$y = g(f(x))$	$y' = g'(f(x)) \cdot f'(x)$

Ejemplos

Función	Derivada
$y = (x^2 + x^2)e^{2x} + (3x^2 + 2x)e^{2x} + (x^2 + x^2)2e^{2x}$	$y' = 2x \cdot 2e^{2x} + (6x + 2)e^{2x} + (3x^2 + 2x)2e^{2x} + 2x \cdot 2e^{2x} + (x^2 + x^2)4e^{2x}$
$y = \frac{\operatorname{cos} 5x}{\operatorname{cos} 5x}$	$y' = \frac{-\operatorname{sen} 5x \cdot 5}{\operatorname{cos}^2 5x} - \frac{\operatorname{sen} 5x \cdot 5}{\operatorname{cos}^2 5x}$
$y = \operatorname{arcsen} 9^x$	$y' = \frac{1}{\sqrt{1-(9^x)^2}} \ln 9 \cdot 9^x$
$y = \frac{\operatorname{tg}(x^2 + 6)}{7}$	$y' = \frac{\operatorname{sec}^2(x^2 + 6) \cdot 2x}{7}$
$y = \frac{x + \ln x}{x + 1}$	$y' = \frac{(x+1) - (x + \ln x)}{(x+1)^2}$

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	$y = \ln x$	$y' = \frac{1}{x}$
	$y = \log_a x$	$y' = \frac{1}{\ln a} \cdot \frac{1}{x}$
Exponencial	$y = e^x$	$y' = e^x$
	$y = a^x$	$y' = \ln a \cdot a^x$
	$y = \operatorname{sen} x$	$y' = \operatorname{cos} x$
	$y = \operatorname{cos} x$	$y' = -\operatorname{sen} x$
	$y = \operatorname{tg} x$	$y' = \operatorname{sec}^2 x$
	$y = \operatorname{arcsen} x$	$y' = \frac{1}{\sqrt{1-x^2}}$
	$y = \operatorname{arccos} x$	$y' = \frac{-1}{\sqrt{1-x^2}}$
	$y = \operatorname{arctg} x$	$y' = \frac{1}{1+x^2}$