TABLA DERIVADAS Por: Fernando Valdés M ©, UTP, Pereira

1	$\frac{d}{dx}(cu) = cu'$	$\frac{d}{dx}(u+v) = u'+v'$	$\frac{d}{dx}(uv) = u'v + uv'$
2	$\frac{d}{dx}(uvw) = u'vw + uv'w + uvw'$	$\frac{d}{dx}\left(\frac{u}{v}\right) = \frac{vu' - uv'}{v^2}$	$\frac{d}{dx}(c) = 0$
3	$\frac{d}{dx}(u^n) = nu^{n-1}\,u'$	$\frac{d}{dx}\lvert u\rvert = \frac{u}{\lvert u\rvert}\,u'$	$\frac{d}{dx}\ln(u) = \frac{1}{u}\,u'$
4	$\frac{d}{dx}(e^u) = e^u\,u'$	$\frac{d}{dx}\operatorname{sen}(u) = \cos(u)\,u'$	$\frac{d}{dx}\operatorname{sen}(ku) = \cos(ku)\,ku'$
5	$\frac{d}{dx}\cos(u) = -\operatorname{sen}(u)\,u'$	$\frac{d}{dx}\cos(ku) = -\operatorname{sen}(ku)ku'$	$\frac{d}{dx}\tan(u) = \sec^2(u)\,u'$
6	$\frac{d}{dx}\sec(u) = \sec(u)\tan(u)\,u'$	$\frac{d}{dx}\cot(u) = -\csc^2(u)\,u'$	$\frac{d}{dx}\csc(u) = -\csc(u)\cot(u)\,u'$
7	$\frac{d}{dx}f(g(x)) = f'(g(x))g'(x)$	$\frac{d}{dx}\log_a(u) = \frac{1}{u\ln(a)}\,u'$	$\frac{d}{dx}a^u = a^u\ln(a)\,u'$
8	$\frac{d}{dx}\operatorname{arc\,sen}(u) = \frac{1}{\sqrt{1-u^2}}\,u'$	$\frac{d}{dx}\operatorname{arc\,cos}(u) = -\frac{1}{\sqrt{1-u^2}}\,u'$	$\frac{d}{dx}\operatorname{arctan}(u) = \frac{1}{1+u^2}\,u'$
9	$\frac{d}{dx}\operatorname{senh}(u) = \cosh(u)\,u'$	$\frac{d}{dx}\cosh(u) = \operatorname{senh}(u)\,u'$	$\frac{d}{dx}\tanh(u) = \operatorname{sech}^2(u)\,u'$
10	$\frac{d}{dx}\operatorname{sech(u)} = -\operatorname{sech(u)}\tanh(u)\,u'$	$\frac{d}{dx}\operatorname{csch(u)} = -\operatorname{csch(u)}\coth(u)\,u'$	$\frac{d}{dx}\operatorname{coth(u)} = -\operatorname{csch}^2(u)\,u'$
11	$\frac{d}{dx}\operatorname{senh}^{-1}(u) = \frac{1}{\sqrt{1+u^2}}\,u'$	$\frac{d}{dx}\cosh^{-1}(u) = \frac{1}{\sqrt{u^2-1}}\,u'$	$\frac{d}{dx}\tanh^{-1}(u) = \frac{1}{1-u^2}u'$
12	$\frac{d}{dx}\operatorname{sech}^{-1}(u) = -\frac{1}{u\sqrt{1-u^2}}\,u'$	$\frac{d}{dx}\operatorname{csch}^{-1}(u) = -\frac{1}{\lvert u\rvert\sqrt{1+u^2}}\,u'$	$\frac{d}{dx}\coth^{-1}(u) = \frac{1}{1-u^2}u'$

TRIGONOMETRÍA HIPERBÓLICA

1	$\cosh(x) = \frac{e^x + e^{-x}}{2}$	$\operatorname{senh}(x) = \frac{e^x - e^{-x}}{2}$	$\tanh(x) = \frac{\operatorname{senh}(x)}{\cosh(x)}$
2	$\cosh^2(x) - \operatorname{senh}^2(x) = 1$	$1 - \tanh^2(x) = \operatorname{sech}^2(x)$	$\coth^2(x) - 1 = \operatorname{csch}^2(x)$
3	$\operatorname{senh}^{-1}(x) = \ln(x + \sqrt{x^2+1})$	$\cosh^{-1}(x) = \ln(x + \sqrt{x^2-1})$	$\tanh^{-1}(x) = \frac{1}{2}\ln\left(\frac{1+x}{1-x}\right)$
4	$\operatorname{senh}^2(x) = \frac{-1 + \cosh(2x)}{2}$	$\cosh^2(x) = \frac{1 + \cosh(2x)}{2}$	$\cosh(2x) = \cosh^2(x) + \operatorname{senh}^2(x)$

TRIGONOMETRÍA CIRCULAR

1	$\operatorname{sen}^2(x) + \cos^2(x) = 1$	$1 + \tan^2(x) = \sec^2(x)$	$1 + \cot^2(x) = \csc^2(x)$
2	$\operatorname{sen}(x + \pi/2) = \cos(x)$	$\sin(\pi - x) = \operatorname{sen}(x),$	$\operatorname{sen}(\pi/2 - x) = \cos(x)$
3	$\cos(x + \pi/2) = \operatorname{sen}(x)$	$\operatorname{sen}(2x) = 2\operatorname{sen}(x)\cos(x)$	$\cos(2x) = \cos^2(x) - \operatorname{sen}^2(x)$
4	$\tan(2x) = \frac{2\tan(x)}{1 - \tan^2(x)}$	$\operatorname{sen}^2(x) = \frac{1 - \cos(2x)}{2}$	$\cos^2(x) = \frac{1 + \cos(2x)}{2}$
5	$\operatorname{sen}(-x) = -\operatorname{sen}(x),$	$\cos(-x) = \cos(x)$	$\tan(-x) = -\tan(x)$
6	$\csc(x) = 1/\operatorname{sen}(x),$	$\sec(x) = 1/\cos(x)$	$\cot(x) = 1/\tan(x)$
7	$\tan(x) = \frac{\operatorname{sen}(x)}{\cos(x)}$	$\cot(x) = \frac{\cos(x)}{\operatorname{sen}(x)}$	
8	$a\operatorname{sen}(x) + b\cos(x) = R\operatorname{sen}(x+\alpha) \implies$	$R = \sqrt{a^2+b^2} \implies$	$\tan(\alpha) = \frac{b}{a}$
9	$a\operatorname{sen}(x) + b\cos(x) = R\cos(x-\alpha) \implies$	$R = \sqrt{a^2+b^2} \implies$	$\tan(\alpha) = \frac{a}{b}$
10	$\operatorname{sen}^{-1}(x) + \cos^{-1}(x) = \pi/2$	$\tan^{-1}(x) + \cot^{-1}(x) = \pi/2$	$\tan^{-1}(x) + \tan^{-1}(1/x) = \pi/2$