POTENCIAS

$a^m \cdot a^n = a^{m+n}$

$a^m : a^n = a^{m-n}$

$(a^m)^n = a^{m \cdot n}$

$a^n \cdot b^n = (a.b)^n$

$a^n : b^n = (a:b)^n$

$a^{-n} = \dfrac{1}{a^n}$

RADICALES

$\sqrt[n]{a^m} = a^{m/n}$

$\sqrt[n]{a} \; \sqrt[n]{b} = \sqrt[n]{ab}$

$\dfrac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\dfrac{a}{b}}$

$\sqrt[m]{\sqrt[n]{a}} = \sqrt[mn]{a}$

ECUACIONES 2º GRADO

$ax^2+bx+c=0 \qquad x_1+x_2 = \dfrac{-b}{a}$

$x = \dfrac{-b \pm \sqrt{b^2-4ac}}{2a} \qquad x_1 \cdot x_2 = \dfrac{c}{a}$

LOGARITMOS

$\log_a N = x \iff N = a^x$

$\log_a (M.N) = \log_a M + \log_a N$

$\log_a (M/N) = \log_a M - \log_a N$

$\log_a N^m = m \log_a N$

PROGRESION ARITMETICA

$a_n = a_1 + (n-1)d$

$S_n = \dfrac{(a_1 + a_n)}{2} . n$

PROGRESION GEOMETRICA

$a_n = a_1 \, r^{n-1}$

$S_n = \dfrac{a_n . r - a_1}{r-1}$

$P_n = \sqrt{(a_1 . a_n)^n}$

TABLA DE RAZONES TRIGONOMETRICAS

	0°	30°	45°	60°	90°	180°	270°	360°
sen α	0	$1/2$	$\sqrt{2}/2$	$\sqrt{3}/2$	1	0	-1	0
cos α	1	$\sqrt{3}/2$	$\sqrt{2}/2$	$1/2$	0	-1	0	1
tg α	0	$\sqrt{3}/3$	1	$\sqrt{3}$	∞	0	$-\infty$	0
ctg α	∞	$\sqrt{3}$	1	$\sqrt{3}/3$	0	$-\infty$	0	∞

TRIGONOMETRIA

$\text{sen}^2\alpha + \cos^2\alpha = 1$

$1 + \text{tg}^2\alpha = \sec^2\alpha = \dfrac{1}{\cos^2\alpha}$

$1 + \text{ctg}^2\alpha = \text{cosec}^2\alpha = \dfrac{1}{\text{sen}^2\alpha}$

Suma y diferencia de ángulos

$\text{sen}\,(a \pm b) = \text{sen}\,a \cos b \pm \text{sen}\,b \cos a$

$\cos\,(a \pm b) = \cos a \cos b \mp \text{sen}\,a\,\text{sen}\,b$

$\text{tg}\,(a \pm b) = \dfrac{\text{tg}\,a \pm \text{tg}\,b}{1 \mp \text{tg}\,a\,\text{tg}\,b}$

Angulo doble

$\text{sen}\,2a = 2\,\text{sen}\,a \cos a$

$\cos 2a = \cos^2 a - \text{sen}^2 a$

$\text{tg}\,2a = \dfrac{2\,\text{tg}\,a}{1 - \text{tg}^2 a}$

Angulo mitad

$\text{sen}\,\dfrac{a}{2} = \pm\sqrt{\dfrac{1-\cos a}{2}}$

$\cos\dfrac{a}{2} = \pm\sqrt{\dfrac{1+\cos a}{2}}$

$\text{tg}\,\dfrac{a}{2} = \pm\sqrt{\dfrac{1-\cos a}{1+\cos a}}$

TRANSFORMACION DE SUMAS EN PRODUCTOS

$\text{sen}\,A + \text{sen}\,B = 2\,\text{sen}\,\dfrac{A+B}{2}\cos\dfrac{A-B}{2}$

$\text{sen}\,A - \text{sen}\,B = 2\cos\dfrac{A+B}{2}\,\text{sen}\,\dfrac{A-B}{2}$

$\cos A + \cos B = 2\cos\dfrac{A+B}{2}\cos\dfrac{A-B}{2}$

$\cos A - \cos B = -2\,\text{sen}\,\dfrac{A+B}{2}\,\text{sen}\,\dfrac{A-B}{2}$

TRANSFORMACION DE PRODUCTOS EN SUMAS

$\text{sen}\,a \cos b = \dfrac{1}{2}\,[\text{sen}\,(a+b) + \text{sen}\,(a-b)]$

$\cos a \cos b = \dfrac{1}{2}\,[\cos(a+b) + \cos(a-b)]$

$\text{sen}\,a\,\text{sen}\,b = \dfrac{-1}{2}\,[\cos(a+b) - \cos(a-b)]$

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TABLA DE DERIVADAS

$u = f(x)$

$y = u \pm v \pm \ldots$	$y' = u' \pm v' \pm \ldots$
$y = u.v$	$y' = u'v + u.v'$
$y = \dfrac{u}{v}$	$y' = \dfrac{u'.v - u.v'}{v^2}$
$y = K$	$y' = 0$
$y = x$	$y' = 1$
$y = K.u$	$y' = K.u'$
$y = u^n$	$y' = n.u^{n-1}.u'$
$y = \log_a . u$	$y' = \dfrac{u'}{u}.\log_a e$
$y = Lu$	$y' = \dfrac{u'}{u}$
$y = a^u$	$y' = u'.a^u\,La$
$y = e^u$	$y' = u'.e^u$
$y = \sqrt{u}$	$y' = \dfrac{u'}{2\sqrt{u}}$
$y = \sqrt[m]{u^n}$	$y' = \dfrac{nu'}{m.\sqrt[m]{u^{m-n}}}$
$y = \text{sen}\,u$	$y' = u'.\cos u$
$y = \cos u$	$y' = -u'.\text{sen}\,u$
$y = \text{tg}\,u$	$y' = u'.\sec^2 u$
$y = \text{cotg}\,u$	$y' = -u'.\text{cosec}^2 u$
$y = \sec u$	$y' = u'\sec u.\,\text{tg}\,u$
$y = \text{cosec}\,u$	$y' = -u'\,\text{cosec}\,u.\text{ctg}\,u$
$y = \text{arc sen}\,u$ $= -\text{arc cos}\,u$	$y' = \dfrac{u'}{\sqrt{1-u^2}}$
$y = \text{arc tg}\,u$ $= -\text{arc cotg}\,u$	$y' = \dfrac{u'}{1+u^2}$
$y = \text{arc sec}\,u$ $= -\text{arc cosec}\,u$	$y' = \dfrac{u'}{u\sqrt{u^2-1}}$

INTEGRALES INMEDIATAS

$v = g(x)$

$\int (u \pm v)\,dx = \int u\,dx \pm \int v\,dx$

$\int k.\,u\,dx = k.\int u\,dx$

$\int u'.u^n\,dx = \dfrac{u^{n+1}}{n+1} + C \quad (n \neq -1)$

$\int \dfrac{u'}{u}\,dx = L\,|u| + C$

$\int u'.e^u\,dx = e^u + C$

$\int u'.a^u\,dx = \dfrac{a^u}{La} + C$

$\int u'.\cos u\,dx = \text{sen}\,u + C$

$\int u'.\text{sen}\,u\,dx = -\cos u + C$

$\int u'.\text{tg}\,u\,dx = -L\,|\cos u| + C$

$\int u'.\text{cotg}\,u\,dx = L\,|\text{sen}\,u| + C$

$\int u'.\sec^2 u\,dx = \text{tg}\,u + C$

$\int u'.\text{cosec}^2 u\,dx = -\text{cotg}\,u + C$

$\int \dfrac{u'}{\sqrt{1-u^2}}\,dx = \text{arc sen}\,u + C = -\text{arc cos}\,u + C$

$\int \dfrac{u'}{\sqrt{a^2-u^2}}\,dx = \text{arc sen}\,\dfrac{u}{a} + C = -\text{arc cos}\,\dfrac{u}{a} + C$

$\int \dfrac{u'}{1+u^2}\,dx = \text{arc tg}\,u + C = -\text{arc cotg}\,u + C$

$\int \dfrac{u'}{a^2+u^2}\,dx = \dfrac{1}{a}\,\text{arc tg}\,\dfrac{u}{a} + C = \dfrac{-1}{a}\,\text{arc cotg}\,\dfrac{u}{a} + C$