TABLA DE DERIVADAS

$D(k) = 0$ donde k = constante
$D(k \cdot u) = k \cdot u'$
$D(u \cdot v) = u' \cdot v + v' \cdot u$
$D\left(\frac{u}{v}\right) = \frac{u' \cdot v - u \cdot v'}{v^2}$
$D(u^n) = n \cdot u^{n-1} \cdot u'$
$D(\ln u) = \frac{1}{u} \cdot u'$
$D(e^u) = e^u \cdot u'$
$D(a^u) = a^u \cdot u' \cdot \ln a$
$D(\operatorname{sen} u) = \cos u \cdot u'$
$D(\cos u) = -\operatorname{sen} u \cdot u'$
$D(\operatorname{tg} u) = \sec^2 u \cdot u'$
$D(\operatorname{cotg} u) = -\operatorname{cosec}^2 u \cdot u'$
$D(\sec u) = \sec u \cdot \operatorname{tg} u \cdot u'$
$D(\operatorname{cosec} u) = -\operatorname{cosec} u \cdot \operatorname{cotg} u \cdot u'$
$D(\operatorname{sh} u) = \operatorname{ch} u \cdot u'$
$D(\operatorname{ch} u) = \operatorname{sh} u \cdot u'$
$D(\operatorname{th} u) = \operatorname{sech} u \cdot u'$
$D(\operatorname{arctg} u) = \frac{1}{1+u^2} \cdot u'$
$D(\operatorname{argsh} u) = \frac{1}{\sqrt{1+u^2}} \cdot u'$
$D(\operatorname{argch} u) = \frac{1}{\sqrt{u^2-1}} \cdot u'$

TABLA DE INTEGRALES

$\int dx = x + c$
$\int x^m \, dx = \dfrac{x^{m+1}}{m+1} + c \ ; \ m \neq -1$
$\int \dfrac{dx}{x} = \ln x + c$
$\int e^x \, dx = e^x + c$
$\int a^x \, dx = \dfrac{a^x}{\ln a} + c$
$\int \text{sen } x \, dx = - \cos x + c$
$\int \cos x \, dx = \text{sen } x + c$
$\int \sec^2 x \, dx = \text{tg } x + c$
$\int \text{cosec}^2 x \, dx = - \text{cotg } x + c$
$\int \text{Sh } x \, dx = \text{Ch } x + c$
$\int \text{Ch } x \, dx = \text{Sh } x + c$
$\int \dfrac{dx}{a^2 + x^2} = \dfrac{1}{a} \text{ arctg}\left(\dfrac{x}{a}\right) + c$
$\int \dfrac{dx}{a^2 - x^2} = \dfrac{1}{a} \text{ argth}\left(\dfrac{x}{a}\right) + c$
$\int \dfrac{dx}{\sqrt{a^2 - x^2}} = \text{arcsen}\left(\dfrac{x}{a}\right) + c$
$\int \dfrac{dx}{\sqrt{x^2 - a^2}} = \text{argCh}\left(\dfrac{x}{a}\right) + c$
$\int \dfrac{dx}{\sqrt{x^2 + a^2}} = \text{argSh}\left(\dfrac{x}{a}\right) + c$

IDENTIDADES TRIGONOMETRICAS

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

2) $\cos^2 u - \text{sen}^2 u = \cos(2u)$

3) $2 \,.\, \text{sen}\, u \,.\, \cos u = \text{sen}(2u)$

4) $\text{Ch}^2 u - \text{Sh}^2 u = 1$

5) $\text{Ch}^2 u + \text{Sh}^2 u = \text{Ch}(2u)$

6) $2 \,.\, \text{Sh}\, u \,.\, \text{Ch}\, u = \text{Sh}(2u)$

7) $\cos x = \cos^2 \frac{x}{2} - \text{sen}^2 \frac{x}{2}$

8) $\text{sen}\, x = 2 \,.\, \text{sen}\, \frac{x}{2} \,.\, \cos \frac{x}{2}$

Trabajando algebraicamente con estas identidades trigonométricas, podemos deducir lo siguiente:

De 1) $\text{sen}\, u = \sqrt{1 - \cos^2 u}$ y $\cos u = \sqrt{1 - \text{sen}^2 u}$

Sumando 1) + 2) $\cos^2 u = \dfrac{1 + \cos(2u)}{2}$

Restando 1) - 2) $\text{sen}^2 u = \dfrac{1 - \cos(2u)}{2}$

De 4) $\text{Ch}\, u = \sqrt{1 + \text{Sh}^2 u}$ y $\text{Sh}\, u = \sqrt{\text{Ch}^2 u - 1}$

Sumando 4) + 5) $\text{Ch}^2 u = \dfrac{1 + \text{Ch}(2u)}{2}$

Restando 4) - 5) $\text{Sh}^2 u = \dfrac{\text{Ch}(2u) - 1}{2}$