DERIVADAS

$$\frac{d}{dx}(c) = 0$$

$$\frac{d}{dx}(cx) = c$$

$$\frac{d}{dx}\left(cx^n\right) = ncx^{n-1}$$

$$\frac{d}{dx}(u \pm v \pm w \pm \cdots) = \frac{du}{dx} \pm \frac{dv}{dx} \pm \frac{dw}{dx} \cdots$$

$$\frac{d}{dx}(cu) = c\frac{du}{dx}$$

$$\frac{d}{dx}(uv) = u\frac{dv}{dx} + v\frac{du}{dx}$$

$$\frac{d}{dx}(uvw) = u\,v\frac{dw}{dx} + u\,w\frac{dv}{dx} + v\,w\frac{du}{dx}$$

$$\frac{d}{dx}\left(\frac{u}{v}\right) = \frac{v\left(du/dx\right) - u\left(dv/dx\right)}{v^2}$$

$$\frac{d}{dx}\left(u^n\right) = nu^{n-1}\frac{du}{dx}$$

$$\frac{dF}{dx} = \frac{dF}{du}\frac{du}{dx}$$ (Regla de la cadena)

$$\frac{du}{dx} = \frac{1}{dx/du}$$

$$\frac{dF}{dx} = \frac{dF/du}{dx/du}$$

Derivadas de las Funciones Exponenciales y Logarítmicas

$$\frac{d}{dx}\log_a u = \frac{\log_a e}{u}\frac{du}{dx} \qquad a > 0, \quad a \neq 1$$

$$\frac{d}{dx}\ln u = \frac{d}{dx}\log_e u = \frac{1}{u}\frac{du}{dx}$$

$$\frac{d}{dx}a^u = a^u \ln a\frac{du}{dx}$$

$$\frac{d}{dx}e^u = e^u\frac{du}{dx}$$

$$\frac{d}{dx}u^v = \frac{d}{dx}e^{v\ln u} = e^{v\ln u}\frac{d}{dx}\left[v\ln u\right] = vu^{v-1}\frac{du}{dx} + u^v\ln u\frac{dv}{dx}$$

Derivadas de las Funciones Trigonométricas y de las Trigonométricas Inversas

$$\frac{d}{dx}\operatorname{sen} u = \cos u\frac{du}{dx}$$

$$\frac{d}{dx}\cos u = -\operatorname{sen} u\frac{du}{dx}$$

$$\frac{d}{dx}\tan u = \sec^2 u\frac{du}{dx}$$

$$\frac{d}{dx}\cot u = -\csc^2 u\frac{du}{dx}$$

$$\frac{d}{dx}\sec u = \sec u\tan u\frac{du}{dx}$$

$$\frac{d}{dx}\csc u = -\csc u\cot u\frac{du}{dx}$$

$$\frac{d}{dx}\operatorname{sen}^{-1} u = \frac{1}{\sqrt{1-u^2}}\frac{du}{dx} \qquad \left[-\tfrac{\pi}{2} < \operatorname{sen}^{-1} u < \tfrac{\pi}{2}\right]$$

$$\frac{d}{dx}\cos^{-1} u = \frac{-1}{\sqrt{1-u^2}}\frac{du}{dx} \qquad \left[0 < \cos^{-1} u < \pi\right]$$

$$\frac{d}{dx}\tan^{-1} u = \frac{1}{1+u^2}\frac{du}{dx} \qquad \left[-\tfrac{\pi}{2} < \tan^{-1} u < \tfrac{\pi}{2}\right]$$

$$\frac{d}{dx}\cot^{-1}u=\frac{-1}{1+u^2}\frac{du}{dx} \qquad \left[0<\cot^{-1}u<\pi\right]$$

$$\frac{d}{dx}\sec^{-1}u=\frac{1}{|u|\sqrt{u^2-1}}\frac{du}{dx}=\frac{\pm 1}{u\sqrt{u^2-1}}\frac{du}{dx} \qquad \begin{bmatrix} +si & 0<\sec^{-1}u<\frac{\pi}{2} \\ -si & \frac{\pi}{2}<\sec^{-1}u<\pi \end{bmatrix}$$

$$\frac{d}{dx}\csc^{-1}u=\frac{-1}{|u|\sqrt{u^2-1}}\frac{du}{dx}=\frac{\mp 1}{u\sqrt{u^2-1}}\frac{du}{dx} \qquad \begin{bmatrix} -si & 0<\csc^{-1}u<\frac{\pi}{2} \\ +si & -\frac{\pi}{2}<\csc^{-1}u<0 \end{bmatrix}$$

Derivadas de las Funciones Hiperbólicas y de las Hiperbólicas Recíprocas

$$\frac{d}{dx}\operatorname{senh}u=\cosh u\frac{du}{dx} \qquad \frac{d}{dx}\coth u=-\operatorname{csch}^2 u\frac{du}{dx}$$

$$\frac{d}{dx}\cosh u=\operatorname{senh}u\frac{du}{dx} \qquad \frac{d}{dx}\operatorname{sech}u=-\operatorname{sech}u\ \tanh u\frac{du}{dx}$$

$$\frac{d}{dx}\tanh u=\operatorname{sech}^2 u\frac{du}{dx} \qquad \frac{d}{dx}\operatorname{csch}u=-\operatorname{csch}u\ \coth u\frac{du}{dx}$$

$$\frac{d}{dx}\operatorname{senh}^{-1}u=\frac{1}{\sqrt{u^2+1}}\frac{du}{dx}$$

$$\frac{d}{dx}\cosh^{-1}u=\frac{\pm 1}{\sqrt{u^2-1}}\frac{du}{dx} \qquad \begin{bmatrix} + & si & \cosh^{-1}u>0, u>1 \\ - & si & \cosh^{-1}u<0, u<1 \end{bmatrix}$$

$$\frac{d}{dx}\tanh^{-1}u=\frac{1}{1-u^2}\frac{du}{dx} \qquad \left[-1<u<1\right]$$

$$\frac{d}{dx}\coth^{-1}u=\frac{1}{1-u^2}\frac{du}{dx} \qquad \left[u>1 \quad o \quad u<-1\right]$$

$$\frac{d}{dx}\operatorname{sech}^{-1}u=\frac{\pm 1}{u\sqrt{u^2-1}}\frac{du}{dx} \qquad \begin{bmatrix} - & si & \operatorname{sech}^{-1}u>0, & 0<u<1 \\ + & si & \operatorname{sech}^{-1}u<0, & 0<u<1 \end{bmatrix}$$

$$\frac{d}{dx}\operatorname{csch}^{-1}u=\frac{-1}{|u|\sqrt{1+u^2}}\frac{du}{dx}=\frac{\mp 1}{u\sqrt{1+u^2}}\frac{du}{dx} \qquad \left[- \quad si \quad u>0, \quad + \quad si \quad u<0\right]$$

INTEGRALES

$$\int u\,dv = uv - \int v\,du$$

$$\int u^n du = \frac{1}{n+1}u^{n+1} + C \qquad n \neq -1$$

$$\int \frac{du}{u} = \ln|u| + C$$

$$\int e^u\,du = e^u + C$$

$$\int a^u du = \frac{a^u}{\ln a} + C$$

$$\int \operatorname{sen} u\,du = -\cos u + C$$

$$\int \cos u\,du = \operatorname{sen} u + C$$

$$\int \sec^2 u\,du = \tan u + C$$

$$\int \csc^2 u\,du = -\cot u + C$$

$$\int \sec u \tan u\,du = \sec u + C$$

$$\int \csc u \cot u\,du = -\csc u + C$$

$$\int \tan u\,du = \ln|\sec u| + C$$

$$\int \cot u\,du = \ln|\operatorname{sen} u| + C$$

$$\int \sec u\,du = \ln|\sec u + \tan u| + C$$

$$\int \csc u\,du = \ln|\csc u - \cot u| + C$$

$$\int \frac{du}{\sqrt{a^2-u^2}} = \operatorname{sen}^{-1}\frac{u}{a} + C$$

$$\int \frac{du}{a^2+u^2} = \frac{1}{a}\tan^{-1}\frac{u}{a} + C$$

$$\int \frac{du}{u\sqrt{u^2-a^2}} = \frac{1}{a}\sec^{-1}\frac{u}{a} + C$$

$$\int \frac{du}{a^2-u^2} = \frac{1}{2a}\ln\left|\frac{u+a}{u-a}\right| + C$$

$$\int \frac{du}{u^2-a^2} = \frac{1}{2a}\ln\left|\frac{u-a}{u+a}\right| + C$$

$$\int \operatorname{sen}^2 u\,du = \tfrac{1}{2}u - \tfrac{1}{4}\operatorname{sen} 2u + C$$

$$\int \cos^2 u\,du = \tfrac{1}{2}u + \tfrac{1}{4}\operatorname{sen} 2u + C$$

$$\int \tan^2 u\,du = \tan u - u + C$$

$$\int \cot^2 u\,du = -\cot u - u + C$$

$$\int \operatorname{sen}^3 u\,du = -\tfrac{1}{3}\left(2 + \operatorname{sen}^2 u\right)\cos u + C$$

$$\int \cos^3 u\,du = \tfrac{1}{3}\left(2 + \cos^2 u\right)\operatorname{sen} u + C$$

$$\int \tan^3 u\,du = \tfrac{1}{2}\tan^2 u + \ln|\cos u| + C$$

$$\int \cot^3 u\,du = -\tfrac{1}{2}\cot^2 u - \ln|\operatorname{sen} u| + C$$

$$\int \sec^3 u\,du = \tfrac{1}{2}\sec u\;tanu + \tfrac{1}{2}\ln|\sec u + tanu| + C$$

$$\int \operatorname{sen} au\,\cos bu\,du = -\frac{\cos(a-b)u}{2(a-b)} - \frac{\cos(a+b)u}{2(a+b)} + C$$

$$\int \csc^3 u\,du = -\tfrac{1}{2}\csc u \cot u + \tfrac{1}{2}\ln|\csc u - \cot u| + C$$

$$\int \operatorname{sen}^n u\,du = -\tfrac{1}{n}\operatorname{sen}^{n-1} u \cos u + \frac{n-1}{n}\int \operatorname{sen}^{n-2} u\,du$$

$$\int \cos^n u\,du = \tfrac{1}{n}\cos^{n-1} u \operatorname{sen} u + \frac{n-1}{n}\int \cos^{n-2} u\,du$$

$$\int \tan^n u\,du = \frac{1}{n-1}\tan^{n-1} u - \int \tan^{n-2} u\,du$$

$$\int \cot^n u\,du = \frac{-1}{n-1}\cot^{n-1} u - \int \cot^{n-2} u\,du$$

$$\int \sec^n u\,du = \frac{1}{n-1}tanu\sec^{n-2} u + \frac{n-2}{n-1}\int \sec^{n-2} u\,du$$

$$\int \csc^n u\,du = \frac{1}{n-1}\cot u \csc^{n-2} u + \frac{n-2}{n-1}\int \csc^{n-2} u\,du$$

$$\int \operatorname{sen} au\,\operatorname{sen} bu\,du = \frac{\operatorname{sen}(a-b)u}{2(a-b)} - \frac{\operatorname{sen}(a+b)u}{2(a+b)} + C$$

$$\int \cos au\,\cos bu\,du = \frac{\operatorname{sen}(a-b)u}{2(a-b)} + \frac{\operatorname{sen}(a+b)u}{2(a+b)} + C$$

$$\int u^n \cos u\,du = u^n \operatorname{sen} u - n\int u^{n-1} \operatorname{sen} u\,du$$

$$\int u\,\mathrm{sen}\,u\,du = \mathrm{sen}\,u - u\cos u + C$$

$$\int u\cos u\;du = \cos u + u\,\mathrm{sen}\,u + C$$

$$\int u^n\,\mathrm{sen}\,u\,du = u^n\cos u + n\int u^{n-1}\cos u\,du$$

$$\int \mathrm{sen}^n u\cos^m u\,du$$
$$= -\frac{\mathrm{sen}^{n-1} u\cos^{m+1} u}{n+m} + \frac{n-1}{n+m}\int \mathrm{sen}^{n-2} u\cos^m u\,du$$
$$= -\frac{\mathrm{sen}^{n+1} u\cos^{m-1} u}{n+m} + \frac{m-1}{n+m}\int \mathrm{sen}^{n} u\cos^{m-2} u\,du$$

$$\int u\cos^{-1} u\;du = \frac{2u^2-1}{4}\cos^{-1} u - \frac{u\sqrt{1-u^2}}{4} + C$$

$$\int u\tan^{-1} u\,du = \frac{u^2+1}{2}\tan^{-1} u - \frac{u}{2} + C$$

$$\int \mathrm{sen}^{-1} u\,du = u\,\mathrm{sen}^{-1} u + \sqrt{1-u^2} + C$$

$$\int \cos^{-1} u\,du = u\cos^{-1} u - \sqrt{1-u^2} + C$$

$$\int \tan^{-1} u\,du = u\tan^{-1} u - \tfrac{1}{2}\ln\left(1+u^2\right) + C$$

$$\int u\,\mathrm{sen}^{-1} u\;du = \frac{2u^2-1}{4}\mathrm{sen}^{-1} u + \frac{u\sqrt{1-u^2}}{4} + C$$

$$\int ue^{au}\,du = \frac{1}{a^2}(au-1)e^{au} + C$$

$$\int u^n e^{au}\,du = \frac{1}{a}u^n e^{au} - \frac{n}{a}\int u^{n-1}e^{au}du$$

$$\int e^{au}\,\mathrm{sen}\,bu\;du = \frac{e^{au}}{a^2+b^2}(a\,\mathrm{sen}\,bu - b\cos bu) + C$$

$$\int e^{au}\cos bu\;du = \frac{e^{au}}{a^2+b^2}(a\cos bu + b\,\mathrm{sen}\,bu) + C$$

$$\int u^n\,\mathrm{sen}^{-1} u\,du = \frac{1}{n+1}\left[u^{n+1}\,\mathrm{sen}^{-1} u - \int \frac{u^{n+1}du}{\sqrt{1-u^2}}\right],\quad n \neq -1$$

$$\int u^n\cos^{-1} u\,du = \frac{1}{n+1}\left[u^{n+1}\cos^{-1} u + \int \frac{u^{n+1}du}{\sqrt{1-u^2}}\right],\quad n \neq -1$$

$$\int u^n\tan^{-1} u\,du = \frac{1}{n+1}\left[u^{n+1}\tan^{-1} u - \int \frac{u^{n+1}du}{\sqrt{1+u^2}}\right], n \neq -1$$

$$\int \ln u\,du = u\ln u - u + C$$

$$\int u^n\ln u\;du = \frac{u^{n+1}}{(n+1)^2}\left[(n+1)\ln u - 1\right] + C$$

$$\int \frac{1}{u\ln u}du = \ln\left|\ln u\right| + C$$

$$\int \mathrm{senh}\,u\,du = \cosh u + C$$

$$\int \cosh u\,du = \mathrm{senh}\,u + C$$

$$\int \tanh u\,du = \ln\cosh u + C$$

$$\int \coth u\,du = \ln\left|\mathrm{senh}\,u\right| + C$$

$$\int \mathrm{sech}\,u\,du = tan^{-1}\left|\mathrm{senh}\,u\right| + C$$

$$\int \mathrm{sech}\,u\,du = \ln\left|\tan\tfrac{1}{2}u\right| + C$$

$$\int \mathrm{sech}^2 u\,du = \tanh u + C$$

$$\int \mathrm{csch}^2 u\,du = -\coth u + C$$

$$\int \mathrm{sech}\,u\tanh u\,du = -\mathrm{sech}\,u + C$$

$$\int \mathrm{csch}\,u\coth u\,du = -\mathrm{csch}\,u + C$$

$$\int \sqrt{a^2+u^2}\,du = \frac{u}{2}\sqrt{a^2+u^2} + \frac{a^2}{2}\ln\left|u+\sqrt{a^2+u^2}\right| + C$$

$$\int u^2\sqrt{a^2+u^2}\,du = \frac{u}{8}(a^2+2u^2)\sqrt{a^2+u^2} - \frac{a^2}{8}\ln\left|u+\sqrt{a^2+u^2}\right| + C$$

$$\int \frac{du}{u\sqrt{a^2+u^2}} = -\frac{1}{a}\ln\left|\frac{\sqrt{a^2+u^2}+a}{u}\right| + C$$

$$\int \frac{du}{u^2\sqrt{a^2+u^2}} = -\frac{\sqrt{a^2+u^2}}{a^2u} + C$$

$$\int \frac{\sqrt{a^2+u^2}}{u}\,du = \sqrt{a^2+u^2} - a\ln\left|\frac{a+\sqrt{a^2+u^2}}{u}\right| + C$$

$$\int \frac{\sqrt{a^2+u^2}}{u^2}\,du = -\frac{\sqrt{a^2+u^2}}{u} + \ln\left|u+\sqrt{a^2+u^2}\right| + C$$

$$\int \frac{du}{\sqrt{a^2+u^2}} = \ln\left|u+\sqrt{a^2+u^2}\right| + C$$

$$\int \frac{u^2\,du}{\sqrt{a^2+u^2}} = \frac{u}{2}\sqrt{a^2+u^2} - \frac{a^2}{2}\ln\left|u+\sqrt{a^2+u^2}\right| + C$$

$$\int \frac{du}{(a^2+u^2)^{3/2}} = \frac{u}{a^2\sqrt{a^2+u^2}} + C$$

$$\int \sqrt{a^2-u^2}\,du = \frac{u}{2}\sqrt{a^2-u^2} + \frac{a^2}{2}\operatorname{sen}^{-1}\frac{u}{a} + C$$

$$\int u^2\sqrt{a^2-u^2}\,du = \frac{u}{8}(2u^2-a^2)\sqrt{a^2-u^2} + \frac{a^4}{8}\operatorname{sen}^{-1}\frac{u}{a} + C$$

$$\int \frac{\sqrt{a^2-u^2}}{u}\,du = \sqrt{a^2-u^2} - a\ln\left|\frac{a+\sqrt{a^2-u^2}}{u}\right| + C$$

$$\int \frac{\sqrt{a^2-u^2}}{u^2}\,du = -\frac{1}{u}\sqrt{a^2-u^2} - \operatorname{sen}^{-1}\frac{u}{a} + C$$

$$\int \frac{u^2\,du}{\sqrt{a^2-u^2}} = -\frac{u}{2}\sqrt{a^2-u^2} + \frac{a^2}{2}\operatorname{sen}^{-1}\frac{u}{a} + C$$

$$\int \frac{du}{u\sqrt{a^2-u^2}} = -\frac{1}{a}\ln\left|\frac{a+\sqrt{a^2-u^2}}{u}\right| + C$$

$$\int \frac{du}{u^2\sqrt{a^2-u^2}} = -\frac{1}{a^2u}\sqrt{a^2-u^2} + C$$

$$\int (a^2-u^2)^{3/2}\,du = -\frac{u}{8}(2u^2-5a^2)\sqrt{a^2-u^2} + \frac{3a^4}{8}\operatorname{sen}^{-1}\frac{u}{a} + C$$

$$\int \frac{du}{(a^2-u^2)^{3/2}} = \frac{u}{a^2\sqrt{a^2-u^2}} + C$$

$$\int \sqrt{u^2-a^2}\,du = \frac{u}{2}\sqrt{u^2-a^2} - \frac{a^2}{2}\ln\left|u+\sqrt{u^2-a^2}\right| + C$$

$$\int u^2\sqrt{u^2-a^2}\,du = \frac{u}{8}(2u^2-a^2)\sqrt{u^2-a^2} - \frac{a^4}{8}\ln\left|u+\sqrt{u^2-a^2}\right| + C$$

$$\int \frac{\sqrt{u^2-a^2}}{u}\,du = \sqrt{u^2-a^2} - a\cos^{-1}\frac{a}{u} + C$$

$$\int \frac{\sqrt{u^2-a^2}}{u^2}\,du = -\frac{\sqrt{u^2-a^2}}{u} + \ln\left|u+\sqrt{u^2-a^2}\right| + C$$

$$\int \frac{du}{\sqrt{u^2-a^2}} = \ln\left|u+\sqrt{u^2-a^2}\right| + C$$

$$\int \frac{u^2\,du}{\sqrt{u^2-a^2}} = \frac{u}{2}\sqrt{u^2-a^2} + \frac{a^2}{2}\ln\left|u+\sqrt{u^2-a^2}\right| + C$$

$$\int \frac{du}{u^2\sqrt{u^2-a^2}} = \frac{\sqrt{u^2-a^2}}{a^2u} + C$$

$$\int \frac{du}{(u^2-a^2)^{3/2}} = -\frac{u}{a^2\sqrt{u^2-a^2}} + C$$

$$\int \frac{u\,du}{a+bu} = \frac{1}{b^2}\left(a+bu-a\ln|a+bu|\right)+C$$

$$\int \frac{u^2du}{a+bu} = \frac{1}{2b^3}\left[(a+bu)^2-4a(a+bu)+2a^2\ln|a+bu|\right]+C$$

$$\int \frac{du}{u(a+bu)} = \frac{1}{a}\ln\left|\frac{u}{a+bu}\right|+C$$

$$\int \frac{du}{u^2(a+bu)} = -\frac{1}{au}+\frac{b}{a^2}\ln\left|\frac{a+bu}{u}\right|+C$$

$$\int \frac{u\,du}{(a+bu)^2} = \frac{a}{b^2(a+bu)}+\frac{1}{b}\ln|a+bu|+C$$

$$\int \frac{du}{u(a+bu)^2} = \frac{1}{a(a+bu)}-\frac{1}{a^2}\ln\left|\frac{a+bu}{u}\right|+C$$

$$\int \frac{u^2du}{(a+bu)^2} = \frac{1}{b^3}\left(a+bu-\frac{a^2}{a+bu}-2a\ln|a+bu|\right)+C$$

$$\int u\sqrt{a+bu}\,du = \frac{2}{15b^2}(3bu-2a)(a+bu)^{3/2}+C$$

$$\int \frac{u\,du}{\sqrt{a+bu}} = \frac{2}{3b^2}(bu-2a)\sqrt{a+bu}$$

$$\int \frac{u^2du}{\sqrt{a+bu}} = \frac{2}{15b^3}\left(8a^2+3b^2u^2-4abu\right)\sqrt{a+bu}$$

$$\int \frac{du}{u\sqrt{a+bu}} = \frac{1}{\sqrt{a}}\ln\left|\frac{\sqrt{a+bu}-\sqrt{a}}{\sqrt{a+bu}+\sqrt{a}}\right|+C,\ \text{si}\ \ a>0$$

$$= \frac{2}{\sqrt{-a}}\tan^{-1}\sqrt{\frac{a+bu}{-a}}+C,\ \text{si}\ \ a<0$$

$$\int \frac{\sqrt{a+bu}}{u}du = 2\sqrt{a+bu}+a\int\frac{du}{u\sqrt{a+bu}}$$

$$\int \frac{\sqrt{a+bu}}{u^2}du = -\frac{\sqrt{a+bu}}{u}+\frac{b}{2}\int\frac{du}{u\sqrt{a+bu}}$$

$$\int u^n\sqrt{a+bu}\,du = \frac{2}{b(2n+3)}\left[u^n(a+bu)^{3/2}-na\int u^{n-1}\sqrt{a+bu}\,du\right]$$

$$\int \frac{u^n du}{\sqrt{a+bu}} = \frac{2u^n\sqrt{a+bu}}{b(2n+1)}-\frac{2na}{b(2n+1)}\int\frac{u^{n-1}du}{\sqrt{a+bu}}$$

$$\int \frac{du}{u^n\sqrt{a+bu}} = -\frac{\sqrt{a+bu}}{a(n-1)u^{n-1}}-\frac{b(2n-3)}{2a(n-1)}\int\frac{du}{u^{n-1}\sqrt{a+bu}}$$

$$\int \sqrt{2au-u^2}\,du = \frac{u-a}{2}\sqrt{2au-u^2}+\frac{a^2}{2}\cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int u\sqrt{2au-u^2}\,du = \frac{2u-au-3a^2}{6}\sqrt{2au-u^2}+\frac{a^3}{2}\cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int \frac{\sqrt{2au-u^2}}{u^2}du = \sqrt{2au-u^2}+a\cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int \frac{\sqrt{2au-u^2}}{u^2}du = -\frac{2\sqrt{2au-u^2}}{u}-\cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int \frac{u^2du}{\sqrt{2au-u^2}} = -\frac{(u+3a)}{2}\sqrt{2au-u^2}+\frac{3a^2}{2}\cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int \frac{du}{\sqrt{2au-u^2}} = \cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int \frac{u\,du}{\sqrt{2au-u^2}} = -\sqrt{2au-u^2}+a\cos^{-1}\left(\frac{a-u}{a}\right)+C$$

$$\int \frac{du}{u\sqrt{2au-u^2}} = -\frac{\sqrt{2au-u^2}}{au}+C$$

TRIGONOMETRÍA

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

$\sec^2 A - \tan^2 A = 1$

$\csc^2 A - \cot^2 A = 1$

$\tan A = \dfrac{\text{sen } A}{\cos A}$

$\cot A = \dfrac{\cos A}{\text{sen } A}$

$\text{sen } A \csc A = 1$

$\cos A \sec A = 1$

$\tan A \cot A = 1$

$\text{sen } (-A) = -\text{sen } A$

$\cos (-A) = \cos A$

$\tan(-A) = -\tan A$

$\text{sen}^2 A = \frac{1}{2} - \frac{1}{2}\cos 2A$

$\cos^2 A = \frac{1}{2} + \frac{1}{2}\cos 2A$

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

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

$\text{sen } (A \pm B) = \text{sen } A \cos B \pm \cos A\,\text{sen } B$

$\cos (A \pm B) = \cos A \cos B \mp \text{sen } A\,\text{sen } B$

$tan\,(A \pm B) = \dfrac{tanA \pm tanB}{1 \mp tanAtanB}$

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

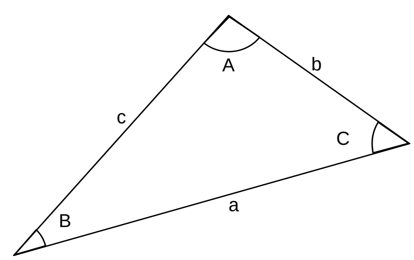
$\cos \dfrac{A}{2} = \pm\sqrt{\dfrac{1 + \cos A}{2}}$

$\text{sen } A\,\text{sen } B = \frac{1}{2}\left[\cos(A - B) - \cos(A + B)\right]$

$\text{sen } A \cos B = \frac{1}{2}\left[\text{sen}(A - B) + \text{sen}(A + B)\right]$

$\cos A \cos B = \frac{1}{2}\left[\cos(A - B) + \cos(A + B)\right]$

Las leyes siguientes son validas para cualquier triángulo plano ABC de lados a, b, c y de ángulos A, B, C.



Ley de los senos

$$\frac{a}{\text{sen } A} = \frac{b}{\text{sen } B} = \frac{c}{\text{sen } C}$$

Ley de los cosenos

$$c^2 = a^2 + b^2 - 2ab\cos C$$

Los otros lados y ángulos están relacionados en forma similar

Ley de las tangentes

$$\frac{a+b}{a-b} = \frac{tan\,\frac{1}{2}(A+B)}{tan\,\frac{1}{2}(A-B)}$$

Los otros lados y ángulos están relacionados en forma similar

NÚMEROS COMPLEJOS

Siendo p un número real cualquiera, el teorema de De Moivre establece que

$$\left[r(\cos\theta + i\,\text{sen }\theta)\right]^p = r^p\left(\cos p\theta + i\,\text{sen } p\theta\right)$$

Sea n cualquier entero positivo y $p = 1/n$, entonces

$$\left[r(\cos\theta + i\,\text{sen }\theta)\right]^{1/n} = r^{1/n}\left[\cos\frac{\theta + 2k\pi}{n} + i\,\text{sen}\frac{\theta + 2k\pi}{n}\right]$$

donde k es un entero positivo. De aquí se pueden obtener las n raíces n-ésimas distintas de un número complejo haciendo $k = 0,1,2,\cdots,n-1$