Tabla de Integrales

1) Formas que tienen potencias:

$$\int dx = x + C \qquad\qquad \int x^n\, dx = \frac{x^{n+1}}{n+1} + C \quad \text{para} \quad n \neq -1$$

$$\int \frac{1}{x}\, dx = \int x^{-1} dx = Ln\,|x| + C \qquad \int \frac{1}{\sqrt{x}}\, dx = \int x^{(-1/2)} dx = 2\sqrt{x} + C$$

2) Exponenciales:

$$\int e^x\, dx = e^x + C \qquad\qquad \int a^x dx = \frac{a^x}{Ln\,a} + C \quad \text{con} \quad a > 0$$

3) Funciones trigonométricas:

$$\int \text{sen}\,x\, dx = -\cos x + C \qquad\qquad \int \cos x\, dx = \text{sen}\,x + C$$

$$\int \frac{1}{\cos^2 x}\, dx = \int \sec^2(x) dx = \tan x + C \qquad \int \frac{1}{\text{sen}^2\,x}\, dx = \int \csc^2 x\, dx = -cotg\,x + C$$

$$\int \sec x \tan x\, dx = \sec x + C \qquad\qquad \int \csc x \cot x\, dx = -\csc x + C$$

$$\int \tan x\, dx = -\ln|\cos x| + C \qquad\qquad \int \cot x\, dx = \ln|\text{sen}\,x| + C$$

$$\int \sec x\, dx = \ln|\sec x + \tan x| + C \qquad \int \csc x\, dx = \ln|\csc x - \cot x| + C$$

4) Funciones Hiperbólicas:

$$\int \text{senh}\,x\, dx = \cosh x + C \qquad\qquad \int \cosh x\, dx = \text{senh}\,x + C$$

5) Funciones algebraicas:

$$\int \frac{1}{\sqrt{1-x^2}}\, dx = \text{arcsen}\,x + C \qquad \int \frac{1}{\sqrt{a^2-x^2}}\, dx = \text{arcsen}\left(\frac{x}{a}\right) + C$$

$$\int \frac{1}{1+x^2}\, dx = \arctan x + C \qquad \int \frac{1}{a^2+x^2}\, dx = \frac{1}{a}\arctan\left(\frac{x}{a}\right) + C$$

6) Integración por partes:

$$\begin{aligned} u = u(x), \quad du = u'(x)dx \\ v = v(x), \quad dv = v'(x)dx \end{aligned} \Rightarrow \int u\,dv = uv - \int v\,du$$