FORMULARIO

① $\int \frac{1}{x}dx = \ln x + C$

② $\int \frac{u'}{u}dx = \ln u + C$

③ $\int a^x dx = \frac{a^x}{\ln a} + C$

④ $\int e^x dx = e^x + C$

⑤ $\int a^u \cdot u' dx = \frac{a^u}{\ln a} + C$

⑥ $\int e^u \cdot u' dx = e^u + C$

EJEMPLOS:

① $\int \frac{x^2}{x^3+8}dx$

$u = x^3+8 \quad u' = 3x^2$

$\int \frac{x^2}{x^3+8}dx = \frac{1}{3}\int \frac{3x^2}{x^3+8}dx$

$= \frac{1}{3}\ln(x^3+8) + C$

② $\int \cot x\, dx$

$\int \cot x\, dx = \int \frac{\cos x}{\operatorname{sen} x}dx$

$u = \operatorname{sen} x \quad u' = \cos x$

$\int \cot x\, dx = \int \frac{\cos x}{\operatorname{sen} x}dx = \ln(\operatorname{sen} x) + C$

③ $\int \frac{dx}{\tan x}$

$\int \frac{dx}{\tan x} = \int \frac{\cos x}{\operatorname{sen} x}dx$

$u = \operatorname{sen} x \quad u' = \cos x$

$\int \frac{dx}{\tan x} = \int \frac{\cos x}{\operatorname{sen} x}dx$

$= \ln(\operatorname{sen} x) + C$

EJERCICIOS:

④ $\int \frac{\operatorname{sen} 2x}{1+\operatorname{sen}^2 x}\,dx$

⑤ $\int \frac{1}{\sqrt{x}(1+\sqrt{x})}\,dx$

⑥ $\int \frac{2x^3+x^2-x}{x^2}\,dx$

⑦ $\int \frac{2^x}{3^x}\,dx$

⑧ $\int x\,e^{x^2}\,dx$

⑨ $\int e^{\operatorname{sen}^2 x}\,\operatorname{sen} 2x\,dx$