Integral Indefinida - Cambio de variable

Bit Planet

Solución

$$\int \frac{1}{\tan x}\,dx = \int \cot x\,dx$$

$* \tan x = \frac{\sen x}{\cos x}$

$$\int \frac{1}{\tan x}\,dx = \int \frac{1}{\frac{\sen x}{\cos x}}\,dx = \int \frac{\cos x}{\sen x}\,dx$$

$u = \sen x$

$du = \cos x\,dx$

$dx = \frac{du}{\cos x}$

$$= \int \frac{\cos x}{u}\left[\frac{du}{\cos x}\right]$$

$$= \int \frac{\cancel{\cos x}}{u}\left[\frac{du}{\cancel{\cos x}}\right]$$

$$= \int \frac{1}{u}\,du$$

$* \int \frac{1}{x}\,dx = \ln|x| + C$

$$= \ln|u| + C$$

$$= \ln|\sen x| + C$$