

# FORMULARIO DE INTEGRACIÓN

1.  $\int (f(x) \pm g(x)) dx = \int f(x) dx \pm \int g(x) dx$

2.  $\int k f(x) dx = k \int f(x) dx$

3.  $\int x^n dx = \frac{x^{n+1}}{n+1} + c$

4.  $\int v^n dv = \frac{v^{n+1}}{n+1} + c$

5.  $\int \frac{dv}{v} = \ln|v| + c$

6.  $\int \frac{dv}{v^2 + a^2} = \frac{1}{a} \text{ArcTan} \frac{v}{a} + c$

7.  $\int \frac{dv}{\sqrt{a^2 - v^2}} = \text{ArcSen} \frac{v}{a} + c$

8.  $\int \frac{dv}{v\sqrt{v^2 - a^2}} = \frac{1}{a} \text{ArcSec} \frac{v}{a} + c$

9.  $\int e^v dv = e^v + c$

10.  $\int a^v dv = \frac{a^v}{\ln a} + c$

11.  $\int \text{Senv} dv = -\text{Cosv} + c$

12.  $\int \text{Cosv} dv = \text{Senv} + c$

13.  $\int \text{Sec}^2 v dv = \text{Tgv} + c$

14.  $\int \text{Csc}^2 v dv = -\text{Ctgv} + c$

15.  $\int \text{Secv} \text{Tgv} dv = \text{Secv} + c$

16.  $\int \text{Cscv} \text{Ctgv} dv = -\text{Cscv} + c$

17.  $\int \text{Tgv} dv = \begin{cases} -\ln|\text{Cosv}| + c \\ \ln|\text{Secv}| + c \end{cases}$

18.  $\int \text{Ctgv} dv = \begin{cases} \ln|\text{Senv}| + c \\ -\ln|\text{Cscv}| + c \end{cases}$

19.  $\int \text{Secv} dv = \begin{cases} \ln|\text{Secv} + \text{Tgv}| + c \\ -\ln|\text{Secv} - \text{Tgv}| + c \end{cases}$

20.  $\int \text{Cscv} dv = \begin{cases} -\ln|\text{Cscv} + \text{Ctgv}| + c \\ \ln|\text{Cscv} - \text{Ctgv}| + c \end{cases}$

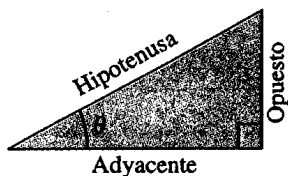
21.  $\int u dv = uv - \int v du$

NOMBRE:

# TRIGONOMETRÍA

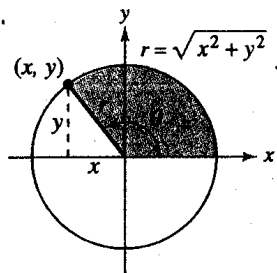
## Definición de las seis funciones trigonométricas

Definiciones por triángulos rectángulos, donde  $0 < \theta < \pi/2$ .

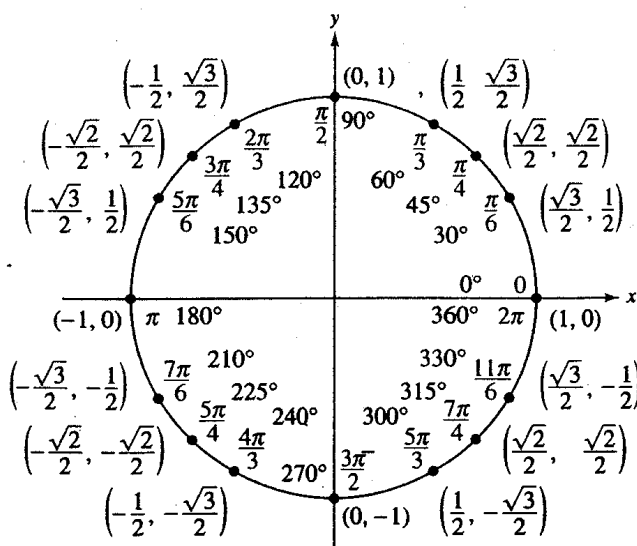


$$\begin{aligned} \operatorname{sen} \theta &= \frac{\text{op}}{\text{hip}} & \operatorname{csc} \theta &= \frac{\text{hip}}{\text{op}} \\ \operatorname{cos} \theta &= \frac{\text{ady}}{\text{hip}} & \operatorname{sec} \theta &= \frac{\text{hip}}{\text{ady}} \\ \operatorname{tan} \theta &= \frac{\text{op}}{\text{ady}} & \operatorname{cot} \theta &= \frac{\text{ady}}{\text{op}} \end{aligned}$$

Definiciones como funciones, donde  $\theta$  es cualquier ángulo.



$$\begin{aligned} \operatorname{sen} \theta &= \frac{y}{r} & \operatorname{csc} \theta &= \frac{r}{y} \\ \operatorname{cos} \theta &= \frac{x}{r} & \operatorname{sec} \theta &= \frac{r}{x} \\ \operatorname{tan} \theta &= \frac{y}{x} & \operatorname{cot} \theta &= \frac{x}{y} \end{aligned}$$



## Identidades recíprocas

$$\begin{aligned} \operatorname{sen} x &= \frac{1}{\operatorname{csc} x} & \operatorname{sec} x &= \frac{1}{\operatorname{cos} x} & \operatorname{tan} x &= \frac{1}{\operatorname{cot} x} \\ \operatorname{csc} x &= \frac{1}{\operatorname{sen} x} & \operatorname{cos} x &= \frac{1}{\operatorname{sec} x} & \operatorname{cot} x &= \frac{1}{\operatorname{tan} x} \end{aligned}$$

## Identidades de tangente y cotangente

$$\operatorname{tan} x = \frac{\operatorname{sen} x}{\operatorname{cos} x} \quad \operatorname{cot} x = \frac{\operatorname{cos} x}{\operatorname{sen} x}$$

## Identidades pitagóricas

$$\begin{aligned} \operatorname{sen}^2 x + \operatorname{cos}^2 x &= 1 \\ 1 + \operatorname{tan}^2 x &= \operatorname{sec}^2 x & 1 + \operatorname{cot}^2 x &= \operatorname{csc}^2 x \end{aligned}$$

## Identidades de cofunciones

$$\begin{aligned} \operatorname{sen}\left(\frac{\pi}{2} - x\right) &= \operatorname{cos} x & \operatorname{cos}\left(\frac{\pi}{2} - x\right) &= \operatorname{sen} x \\ \operatorname{csc}\left(\frac{\pi}{2} - x\right) &= \operatorname{sec} x & \operatorname{tan}\left(\frac{\pi}{2} - x\right) &= \operatorname{cot} x \\ \operatorname{sec}\left(\frac{\pi}{2} - x\right) &= \operatorname{csc} x & \operatorname{cot}\left(\frac{\pi}{2} - x\right) &= \operatorname{tan} x \end{aligned}$$

## Fórmulas de reducción

$$\begin{aligned} \operatorname{sen}(-x) &= -\operatorname{sen} x & \operatorname{cos}(-x) &= \operatorname{cos} x \\ \operatorname{csc}(-x) &= -\operatorname{csc} x & \operatorname{tan}(-x) &= -\operatorname{tan} x \\ \operatorname{sec}(-x) &= \operatorname{sec} x & \operatorname{cot}(-x) &= -\operatorname{cot} x \end{aligned}$$

## Fórmulas de suma y diferencia

$$\begin{aligned} \operatorname{sen}(u \pm v) &= \operatorname{sen} u \operatorname{cos} v \pm \operatorname{cos} u \operatorname{sen} v \\ \operatorname{cos}(u \pm v) &= \operatorname{cos} u \operatorname{cos} v \mp \operatorname{sen} u \operatorname{sen} v \\ \operatorname{tan}(u \pm v) &= \frac{\operatorname{tan} u \pm \operatorname{tan} v}{1 \mp \operatorname{tan} u \operatorname{tan} v} \end{aligned}$$

## Fórmulas del ángulo doble

$$\begin{aligned} \operatorname{sen} 2u &= 2 \operatorname{sen} u \operatorname{cos} u \\ \operatorname{cos} 2u &= \operatorname{cos}^2 u - \operatorname{sen}^2 u = 2 \operatorname{cos}^2 u - 1 = 1 - 2 \operatorname{sen}^2 u \\ \operatorname{tan} 2u &= \frac{2 \operatorname{tan} u}{1 - \operatorname{tan}^2 u} \end{aligned}$$

## Fórmulas de reducción de potencias

$$\begin{aligned} \operatorname{sen}^2 u &= \frac{1 - \operatorname{cos} 2u}{2} \\ \operatorname{cos}^2 u &= \frac{1 + \operatorname{cos} 2u}{2} \\ \operatorname{tan}^2 u &= \frac{1 - \operatorname{cos} 2u}{1 + \operatorname{cos} 2u} \end{aligned}$$

## Fórmulas de suma-producto

$$\begin{aligned} \operatorname{sen} u + \operatorname{sen} v &= 2 \operatorname{sen}\left(\frac{u+v}{2}\right) \operatorname{cos}\left(\frac{u-v}{2}\right) \\ \operatorname{sen} u - \operatorname{sen} v &= 2 \operatorname{cos}\left(\frac{u+v}{2}\right) \operatorname{sen}\left(\frac{u-v}{2}\right) \\ \operatorname{cos} u + \operatorname{cos} v &= 2 \operatorname{cos}\left(\frac{u+v}{2}\right) \operatorname{cos}\left(\frac{u-v}{2}\right) \\ \operatorname{cos} u - \operatorname{cos} v &= -2 \operatorname{sen}\left(\frac{u+v}{2}\right) \operatorname{sen}\left(\frac{u-v}{2}\right) \end{aligned}$$

## Fórmulas de producto-suma

$$\begin{aligned} \operatorname{sen} u \operatorname{sen} v &= \frac{1}{2} [\operatorname{cos}(u-v) - \operatorname{cos}(u+v)] \\ \operatorname{cos} u \operatorname{cos} v &= \frac{1}{2} [\operatorname{cos}(u-v) + \operatorname{cos}(u+v)] \\ \operatorname{sen} u \operatorname{cos} v &= \frac{1}{2} [\operatorname{sen}(u+v) + \operatorname{sen}(u-v)] \\ \operatorname{cos} u \operatorname{sen} v &= \frac{1}{2} [\operatorname{sen}(u+v) - \operatorname{sen}(u-v)] \end{aligned}$$