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

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

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

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

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

11. $\int Senv\, dv = -Cosv + c$

12. $\int Cosv\, dv = Senv + c$

13. $\int Sec^2 v\, dv = Tgv + c$

14. $\int Csc^2 v\, dv = -Ctgv + c$

15. $\int Secv\, Tgv\, dv = Secv + c$

16. $\int Cscv\, Ctgv\, dv = -Cscv + c$

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

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

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

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

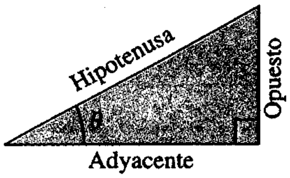
21. $\int u\, dv = uv - \int v\, du$

NOMBRE:

TRIGONOMETRÍA

Definición de las seis funciones trigonométricas

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

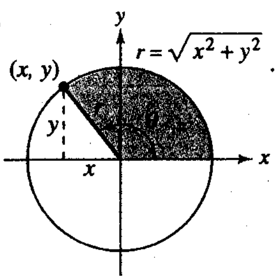


$$\operatorname{sen}\theta = \frac{\text{op}}{\text{hip}} \qquad \csc\theta = \frac{\text{hip}}{\text{op}}$$

$$\cos\theta = \frac{\text{ady}}{\text{hip}} \qquad \sec\theta = \frac{\text{hip}}{\text{ady}}$$

$$\tan\theta = \frac{\text{op}}{\text{ady}} \qquad \cot\theta = \frac{\text{ady}}{\text{op}}$$

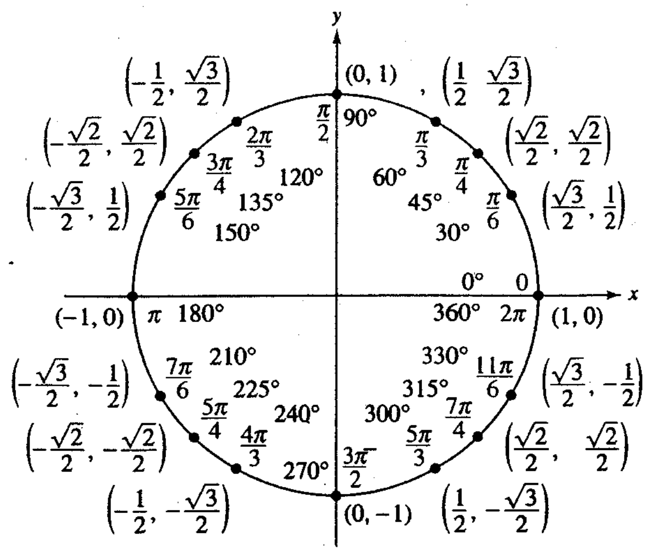
Definiciones como funciones, donde θ es cualquier ángulo.



$$\operatorname{sen}\theta = \frac{y}{r} \qquad \csc\theta = \frac{r}{y}$$

$$\cos\theta = \frac{x}{r} \qquad \sec\theta = \frac{r}{x}$$

$$\tan\theta = \frac{y}{x} \qquad \cot\theta = \frac{x}{y}$$



Identidades recíprocas

$$\operatorname{sen} x = \frac{1}{\csc x} \qquad \sec x = \frac{1}{\cos x} \qquad \tan x = \frac{1}{\cot x}$$

$$\csc x = \frac{1}{\operatorname{sen} x} \qquad \cos x = \frac{1}{\sec x} \qquad \cot x = \frac{1}{\tan x}$$

Identidades de tangente y cotangente

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

Identidades pitagóricas

$$\operatorname{sen}^2 x + \cos^2 x = 1$$

$$1 + \tan^2 x = \sec^2 x \qquad 1 + \cot^2 x = \csc^2 x$$

Identidades de cofunciones

$$\operatorname{sen}\left(\frac{\pi}{2} - x\right) = \cos x \qquad \cos\left(\frac{\pi}{2} - x\right) = \operatorname{sen} x$$

$$\csc\left(\frac{\pi}{2} - x\right) = \sec x \qquad \tan\left(\frac{\pi}{2} - x\right) = \cot x$$

$$\sec\left(\frac{\pi}{2} - x\right) = \csc x \qquad \cot\left(\frac{\pi}{2} - x\right) = \tan x$$

Fórmulas de reducción

$$\operatorname{sen}(-x) = -\operatorname{sen} x \qquad \cos(-x) = \cos x$$

$$\csc(-x) = -\csc x \qquad \tan(-x) = -\tan x$$

$$\sec(-x) = \sec x \qquad \cot(-x) = -\cot x$$

Fórmulas de suma y diferencia

$$\operatorname{sen}(u \pm v) = \operatorname{sen} u \cos v \pm \cos u \operatorname{sen} v$$

$$\cos(u \pm v) = \cos u \cos v \mp \operatorname{sen} u \operatorname{sen} v$$

$$\tan(u \pm v) = \frac{\tan u \pm \tan v}{1 \mp \tan u \tan v}$$

Fórmulas del ángulo doble

$$\operatorname{sen} 2u = 2 \operatorname{sen} u \cos u$$

$$\cos 2u = \cos^2 u - \operatorname{sen}^2 u = 2\cos^2 u - 1 = 1 - 2\operatorname{sen}^2 u$$

$$\tan 2u = \frac{2\tan u}{1 - \tan^2 u}$$

Fórmulas de reducción de potencias

$$\operatorname{sen}^2 u = \frac{1 - \cos 2u}{2}$$

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

$$\tan^2 u = \frac{1 - \cos 2u}{1 + \cos 2u}$$

Fórmulas de suma-producto

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

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

$$\cos u + \cos v = 2\cos\left(\frac{u+v}{2}\right)\cos\left(\frac{u-v}{2}\right)$$

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

Fórmulas de producto-suma

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

$$\cos u \cos v = \frac{1}{2}[\cos(u-v) + \cos(u+v)]$$

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

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