



INTEGRALES INMEDIATAS

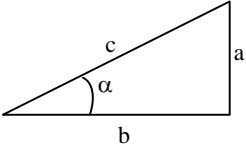
$$\int u^n du = \frac{u^{n+1}}{n+1} + C \quad \int \frac{du}{u} = \ln u + C \quad \int e^u du = e^u + C \quad \int a^u du = \frac{a^u}{\ln a} + C$$

$$\int \cos u du = \sin u + C \quad \int \sin u du = -\cos u + C \quad \int \frac{1}{\cos^2 u} du = \tan u + C \quad \int (1 + \tan^2 u) du = \tan u + C$$

$$\int \frac{1}{1+u^2} du = \arctan u + C \quad \int \sinh u du = \cosh u + C \quad \int \cosh u du = \sinh u + C$$

$$\int \frac{1}{\sqrt{1+u^2}} du = \arg \sinh u + C \quad \int \frac{1}{\sqrt{u^2-1}} du = \arg \cosh u + C \quad \int \frac{1}{\sqrt{1-u^2}} du = \arcsin u + C$$

TRIGONOMETRÍA



$$\sin \alpha = \frac{\text{cateto opuesto}}{\text{hipotenusa}} = \frac{a}{c} \quad \csc \alpha = \frac{1}{\sin \alpha} \quad \sin(-\alpha) = -\sin \alpha$$

$$\cos \alpha = \frac{\text{cateto contiguo}}{\text{hipotenusa}} = \frac{b}{c} \quad \sec \alpha = \frac{1}{\cos \alpha} \quad \cos(-\alpha) = \cos \alpha$$

$$\tan \alpha = \frac{\text{cateto opuesto}}{\text{cateto contiguo}} = \frac{a}{b} \quad \cot \alpha = \frac{1}{\tan \alpha} \quad \tan(-\alpha) = -\tan \alpha$$

Grados	0°	30°	45°	60°	90°
Radianes	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
Seno	0	1/2	$\sqrt{2}/2$	$\sqrt{3}/2$	1
Coseno	1	$\sqrt{3}/2$	$\sqrt{2}/2$	1/2	0
Tangente	0	$1/\sqrt{3}$	1	$\sqrt{3}$	∞

$$\sin(\alpha \pm \beta) = \sin \alpha \cdot \cos \beta \pm \cos \alpha \cdot \sin \beta \quad \sin(2\alpha) = 2 \cdot \sin \alpha \cdot \cos \alpha$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cdot \cos \beta \mp \sin \alpha \cdot \sin \beta \quad \cos(2\alpha) = \cos^2 \alpha - \sin^2 \alpha$$

$$\tan(\alpha \pm \beta) = \frac{\tan \alpha \pm \tan \beta}{1 \mp \tan \alpha \cdot \tan \beta} \quad \tan(2\alpha) = \frac{2 \cdot \tan \alpha}{1 - \tan^2 \alpha}$$

$$\cos^2 \alpha + \sin^2 \alpha = 1$$

$$\cos^2 \alpha = \frac{1 + \cos(2\alpha)}{2}$$

$$\sin^2 \alpha = \frac{1 - \cos(2\alpha)}{2}$$

Teorema del coseno

$$a^2 = b^2 + c^2 - 2 \cdot b \cdot c \cdot \cos \alpha$$

Teorema del seno

$$\frac{\sin \alpha}{a} = \frac{\sin \beta}{b} = \frac{\sin \gamma}{c}$$

EXPONENCIALES

$$y = a^x \quad a \rightarrow \text{base} \\ b \rightarrow \text{exponente}$$

$$a^x = e^{x \cdot \ln a}$$

$$a^0 = 1$$

$$a^x \cdot a^y = a^{x+y}$$

$$\frac{a^x}{a^y} = a^{x-y}$$

$$a^x \cdot b^x = (a \cdot b)^x$$

$$a \cdot b^x = a^x \cdot b^x$$

$$a^{-x} = \frac{1}{a^x}$$

$$\sqrt[x]{a} = a^{\frac{1}{x}}$$

LOGARITMOS

Si $x = a^y \rightarrow y = \log_a x$ (y es el logaritmo en base a de x)

Si $x = e^y \rightarrow y = \ln x$ (el logaritmo en base e se llama neperiano)

$$\log_a x = \frac{\log_b x}{\log_b a}$$

$$\log 1 = 0$$

$$\log x + \log y = \log(x \cdot y) \quad \log x - \log y = \log \frac{x}{y}$$

$$y \cdot \log x = \log x^y$$

$$\frac{\log x}{y} = \log \sqrt[y]{x}$$

FUNCIONES HIPERBÓLICAS

Seno hiperbólico de x: $\sinh x = \frac{e^x - e^{-x}}{2}$

Coseno hiperbólico de x: $\cosh x = \frac{e^x + e^{-x}}{2}$

Tangente hiperbólica de x: $\tanh x = \frac{\sinh x}{\cosh x} = \frac{e^x - e^{-x}}{e^x + e^{-x}}$