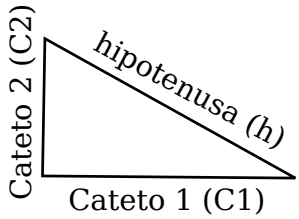
TRIGONOMETRIA

RESOLUCION DE TRIANGULOS

Suma de los ángulos de un triángulo

$\hat{A}+\hat{B}+\hat{C}=180$

Triángulos rectágulos



Teorema de Pitágoras

$$h^2=c_1^2+c_2^2$$

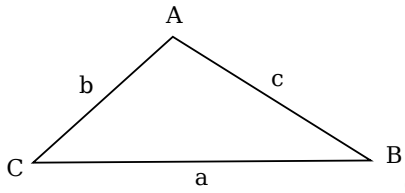
Relaciones trigonométicas

$$Sen\,\alpha=\frac{Cateto\ opuesto}{hipotenusa}$$

$$\cos\alpha=\frac{Cateto\ contiguo}{hipotenusa}$$

$$\tan\alpha=\frac{sen\,\alpha}{\cos\alpha}=\frac{Cateto\ opuesto}{Cateto\ Contiguo}$$

Triángulos no rectángulos



Teorema de seno

$$\frac{a}{sen\,\hat{A}}=\frac{b}{sen\,\hat{B}}=\frac{c}{sen\,\hat{C}}$$

Teorema del coseno

$$a^2=b^2+c^2-2bc\cos\hat{A}$$

$$b^2=a^2+c^2-2ac\cos\hat{B}$$

$$c^2=a^2+b^2-2ab\cos\hat{C}$$

FORMULAS TRIGONOMETRICAS

Fórmulas pitagóricas

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

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

Ángulos opuestos

$$\sin(-\alpha)=-\sin(\alpha)$$

$$\cos(-\alpha)=\cos(\alpha)$$

$$tag(-\alpha)=-tag(\alpha)$$

Ángulos complementarios

$$\sin\left(\frac{\pi}{2}-\alpha\right)=\cos(\alpha)$$
$$\cos\left(\frac{\pi}{2}-\alpha\right)=\sin(\alpha)$$
$$tag\left(\frac{\pi}{2}-\alpha\right)=cotag(\alpha)$$

Ángulos suplementarios

$$\sin(\pi-\alpha)=\sin(\alpha)$$
$$\cos(\pi-\alpha)=-\cos(\alpha)$$
$$tag(\pi-\alpha)=-tag(\alpha)$$

Suma/resta de ángulos

$$\sin(\alpha\pm\beta)=\sin(\alpha)\cdot\cos(\beta)\pm\cos(\alpha)\cdot sen(\beta)$$
$$\cos(\alpha\pm\beta)=\cos(\alpha)\cdot\cos(\beta)\mp sen(\alpha)\cdot sen(\beta)$$
$$Tag(\alpha\pm\beta)=\frac{tag(\alpha)\pm tag(\beta)}{1\mp tag(\alpha)\cdot tag(\beta)}$$

Ángulo doble

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

Ángulo mitad

$$\sin\left(\frac{\alpha}{2}\right)=\sqrt{\frac{1-\cos(\alpha)}{2}}$$
$$\cos\left(\frac{\alpha}{2}\right)=\sqrt{\frac{1+\cos(\alpha)}{2}}$$
$$tag\left(\frac{\alpha}{2}\right)=\sqrt{\frac{1-\cos(\alpha)}{1+\cos(\alpha)}}$$

Pricipales valores trigonométricos

	0º	30º	45º	60º	90º	180º	270º	360º
Sen	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	0	-1	0
Cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0	-1	0	1
Tag	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	∞	0	∞	0