

Identidades Fundamentales:

$\sin \alpha = \frac{1}{\csc \alpha}$	$\cos \alpha = \frac{1}{\sec \alpha}$	$\tan \alpha = \frac{1}{\cot \alpha}$	$\sin(-x) = -\sin(x)$
$\csc \alpha = \frac{1}{\sin \alpha}$	$\sec \alpha = \frac{1}{\cos \alpha}$	$\cot \alpha = \frac{1}{\tan \alpha}$	$\cos(-x) = \cos(x)$
$\tan \alpha = \frac{\sin \alpha}{\cos \alpha}$	$\cot \alpha = \frac{\cos \alpha}{\sin \alpha}$		$\tan(-x) = -\tan(x)$

$\sin^2 \alpha + \cos^2 \alpha = 1$			
$\sin^2 \alpha = 1 - \cos^2 \alpha$	$\cos^2 \alpha = 1 - \sin^2 \alpha$	$\tan^2 x = \frac{1 - \cos^2 x}{\cos^2 x}$	$\cot^2 x = \csc^2 x - 1$
$\sin \alpha = \sqrt{1 - \cos^2 \alpha}$	$\cos \alpha = \sqrt{1 - \sin^2 \alpha}$	$\tan x = \frac{\sqrt{1 - \cos^2 x}}{\cos x}$	$\cot x = \sqrt{\csc^2 x - 1}$

Fórmulas de suma y diferencia de ángulos:

FUNCIÓN	SUMA	DIFERENCIA	ANGULO DOBLE	ANGULO MITAD	ANGULO TRIPLE
seno (sen)	$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \sin \beta \cos \alpha$	$\sin(\alpha - \beta) = \sin \alpha \cos \beta - \sin \beta \cos \alpha$	$\sin 2\alpha = 2 \sin \alpha \cos \alpha$	$\sin \frac{x}{2} = \pm \sqrt{\frac{1 - \cos x}{2}}$	$\sin 3\alpha = 3 \sin \alpha - 4 \sin^3 \alpha$
coseno (cos)	$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$	$\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$	$\cos 2\alpha = \cos^2 \alpha - \sin^2 \alpha$	$\cos \frac{x}{2} = \pm \sqrt{\frac{1 + \cos x}{2}}$	$\cos 3\alpha = 4 \cos^3 \alpha - 3 \cos \alpha$
tangente (tan)	$\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \cdot \tan \beta}$	$\tan(\alpha - \beta) = \frac{\tan \alpha - \tan \beta}{1 + \tan \alpha \cdot \tan \beta}$	$\tan 2\alpha = \frac{2 \tan \alpha}{1 - \tan^2 \alpha}$	$\tan \frac{x}{2} = \pm \sqrt{\frac{1 - \cos x}{1 + \cos x}}$	$\tan 3\alpha = \frac{3 \tan \alpha - \tan^3 \alpha}{1 - 3 \tan^2 \alpha}$
cosecante (csc)	$\csc(\alpha + \beta) = \frac{1}{\sin \alpha \cos \beta + \sin \beta \cos \alpha}$	$\csc(\alpha - \beta) = \frac{1}{\sin \alpha \cos \beta - \sin \beta \cos \alpha}$	$\sin 2\alpha = \frac{1}{2 \sin \alpha \cos \alpha}$	$\csc \frac{x}{2} = \frac{1}{\pm \sqrt{\frac{1 - \cos x}{2}}}$	$\csc 3\alpha = \frac{\csc^3 \alpha}{3 \csc^2 \alpha - 4}$
secante (sec)	$\sec(\alpha + \beta) = \frac{1}{\cos \alpha \cos \beta - \sin \alpha \sin \beta}$	$\sec(\alpha - \beta) = \frac{1}{\cos \alpha \cos \beta + \sin \alpha \sin \beta}$	$\cos 2\alpha = \frac{1}{\cos^2 \alpha - \sin^2 \alpha}$	$\sec \frac{x}{2} = \frac{1}{\pm \sqrt{\frac{1 + \cos x}{2}}}$	$\sec 3\alpha = \frac{1}{\cos^2 \alpha - \sin^2 \alpha}$
cotangente (cot)	$\cot(\alpha + \beta) = \frac{\cot \alpha \cdot \cot \beta - 1}{\cot \alpha + \cot \beta}$	$\cot(\alpha - \beta) = \frac{\cot \alpha \cdot \cot \beta + 1}{\cot \beta - \cot \alpha}$	$\cot 2\alpha = \frac{\cot^2 \alpha - 1}{2 \cot \alpha}$	$\cot \frac{x}{2} = \frac{1}{\pm \sqrt{\frac{1 - \cos x}{1 + \cos x}}}$	$\cot 3\alpha = \frac{\cot^3 \alpha - 3 \cot \alpha}{3 \cot^2 \alpha - 1}$

Identidades de Cofunción y reducción:

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

Identidades de Reducción de Potencias:

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

Fórmulas de transformación de sumas y diferencias en productos:

	Suma	Diferencia
sen	$\sin \alpha + \sin \beta = 2 \sin \frac{\alpha + \beta}{2} \cdot \cos \frac{\alpha - \beta}{2}$	$\sin \alpha - \sin \beta = 2 \sin \frac{\alpha - \beta}{2} \cdot \cos \frac{\alpha + \beta}{2}$
cos	$\cos \alpha + \cos \beta = 2 \cos \frac{\alpha + \beta}{2} \cdot \cos \frac{\alpha - \beta}{2}$	$\cos \alpha - \cos \beta = -2 \sin \frac{\alpha + \beta}{2} \cdot \sin \frac{\alpha - \beta}{2}$
tan	$\tan \alpha + \tan \beta = \frac{\sin(\alpha + \beta)}{\cos \alpha \cdot \cos \beta}$	$\tan \alpha - \tan \beta = \frac{\sin(\alpha - \beta)}{\cos \alpha \cdot \cos \beta}$

Ley del seno, coseno y la tangente

a,b,c: lados A,B,C: ángulos y/o vértices	
Ley del Seno	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$
Ley del Coseno	$a^2 = b^2 + c^2 - 2bc \cos A$
Ley de la Tangente	$\frac{a-b}{a+b} = \frac{\tan \frac{A-B}{2}}{\tan \frac{A+B}{2}}$