



ASTUN ACADEMIA

FÓRMULAS TRIGONOMETRÍA

FORMULAS FUNDAMENTALES			0°	30°	45°	60°	90°	
$\text{Sen } \alpha = \frac{b}{a} < q$	$\text{Sec } \alpha = \frac{1}{\text{sen } \alpha}$	$\text{Sen}^2 \alpha + \text{cos}^2 \alpha = 1$	Sen	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\text{Cos } \alpha = \frac{c}{a}$	$\text{Cosec } \alpha = \frac{1}{\text{sen } \alpha}$	$\text{Sec}^2 \alpha = \text{tg}^2 \alpha + 1$	Cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\text{Tg } \alpha = \frac{b}{c} = \frac{\text{sen } \alpha}{\text{cos } \alpha}$	$\text{Cotg } \alpha = \frac{1}{\text{tg } \alpha} = \frac{\text{cos } \alpha}{\text{sen } \alpha}$	$\text{Cosec}^2 \alpha = \text{cotg}^2 \alpha + 1$	tg	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	---

TRANSFORMACION DE SUMAS EN PRODUCTOS	TRANSFORMACION DE PRODUCTOS EN SUMAS
$\text{Sen } A + \text{sen } B = 2 \text{ sen } \frac{A+B}{2} \text{ cos } \frac{A-B}{2}$	$\text{Sen } a \text{ cos } b = \frac{1}{2} [\text{sen } (a + b) + \text{sen } (a - b)]$
$\text{Sen } A - \text{sen } B = 2 \text{ cos } \frac{A+B}{2} \text{ sen } \frac{A-B}{2}$	$\text{Cos } a \text{ sen } b = \frac{1}{2} [\text{sen } (a + b) - \text{sen } (a - b)]$
$\text{Cos } A + \text{cos } B = 2 \text{ cos } \frac{A+B}{2} \text{ cos } \frac{A-B}{2}$	$\text{Cos } a \text{ cos } b = \frac{1}{2} [\text{cos } (a + b) + \text{cos } (a - b)]$
$\text{Cos } A - \text{cos } B = 2 \text{ sen } \frac{A+B}{2} \text{ sen } \frac{A-B}{2}$	$\text{Sen } a \text{ sen } b = \frac{1}{2} [\text{cos } (a + b) - \text{cos } (a - b)]$

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TEOREMA DEL SENO

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

TEOREMA DEL COSENO

$$\begin{aligned} a^2 &= b^2 + c^2 - 2bc \cos A \\ b^2 &= a^2 + c^2 - 2ac \cos B \\ c^2 &= a^2 + b^2 - 2ab \cos C \end{aligned}$$

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SUMA Y DIFERENCIA DE ANGULOS
$\text{Sen } (a + b) = \text{sen } a \text{ cos } b + \text{cos } a \text{ sen } b$
$\text{Sen } (a - b) = \text{sen } a \text{ cos } b - \text{cos } a \text{ sen } b$
$\text{Cos } (a + b) = \text{cos } a \text{ cos } b - \text{sen } a \text{ sen } b$
$\text{Cos } (a - b) = \text{cos } a \text{ cos } b + \text{sen } a \text{ sen } b$
$\text{tg } (a + b) = \frac{\text{tg } a + \text{tg } b}{1 - \text{tg } a \text{ tg } b}$
$\text{Tg } (a - b) = \frac{\text{tg } a - \text{tg } b}{1 + \text{tg } a \text{ tg } b}$

ANGULO DOBLE

$$\begin{aligned} \text{Sen } 2a &= 2 \text{ sen } a \text{ cos } a \\ \text{Cos } 2a &= \text{cos}^2 a - \text{sen}^2 a \\ \text{Tg } 2a &= \frac{2 \text{tg } a}{1 - \text{tg}^2 a} \end{aligned}$$

ANGULO MITAD

$$\begin{aligned} \text{Sen } \frac{a}{2} &= \pm \sqrt{\frac{1 - \text{cos } a}{2}} \\ \text{Cos } \frac{a}{2} &= \pm \sqrt{\frac{1 + \text{cos } a}{2}} \\ \text{Tg } \frac{a}{2} &= \pm \sqrt{\frac{1 - \text{cos } a}{1 + \text{cos } a}} \end{aligned}$$

A. Complementarios: (a y 90° - a)	$\text{Sen } (90^\circ - a) = \text{cos } a$	$\text{Cos } (90^\circ - a) = \text{sen } a$	$\text{Tg } (90^\circ - a) = \text{cotg } a$
A. Suplementarios: (a y 180° - a)	$\text{Sen } (180^\circ - a) = \text{sen } a$	$\text{Cos } (180^\circ - a) = -\text{cos } a$	$\text{Tg } (180^\circ - a) = -\text{tg } a$
A. que difieren 180°: (a y 180° + a)	$\text{Sen } (180^\circ + a) = -\text{sen } a$	$\text{Cos } (180^\circ + a) = -\text{cos } a$	$\text{Tg } (180^\circ + a) = \text{tg } a$
A. opuestos: (a y -a)	$\text{Sen } (-a) = -\text{sen } a$	$\text{Cos } (-a) = \text{cos } a$	$\text{Tg } (-a) = -\text{tg } a$
A. (90° + a)	$\text{Sen } (90^\circ + a) = \text{Cos } a$	$\text{Cos } (90^\circ + a) = -\text{Sen } a$	$\text{Tg } (90^\circ + a) = -\text{Cotg } a$