

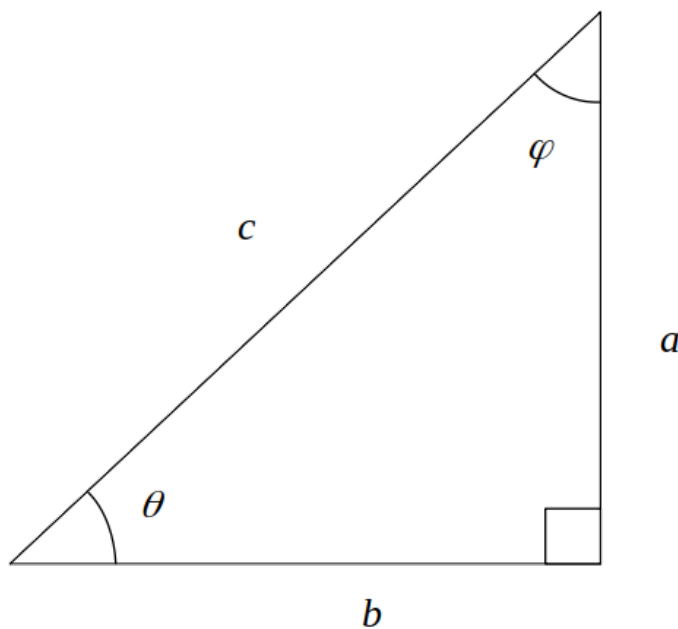
Identidades de Trigonometría

Apuntes

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1 Identidades



$$\text{sen}(\theta) = a/c$$

$$\text{csc}(\theta) = 1/\text{sen}(\theta) = c/a$$

$$\cos(\theta) = b/c$$

$$\sec(\theta) = 1/\cos(\theta) = c/b$$

$$\tan(\theta) = \text{sen}(\theta)/\cos(\theta) = a/b$$

$$\cot(\theta) = 1/\tan(\theta) = b/a$$

$$\begin{aligned}\operatorname{sen}(-x) &= -\operatorname{sen}(x) \\ \operatorname{csc}(-x) &= -\operatorname{csc}(x) \\ \cos(-x) &= \cos(x) \\ \sec(-x) &= \sec(x) \\ \tan(-x) &= -\tan(x) \\ \cot(-x) &= -\cot(x)\end{aligned}$$

$$\begin{aligned}\operatorname{sen}^2(x) + \cos^2(x) &= 1 \\ \tan^2(x) + 1 &= \sec^2(x) \\ \cot^2(x) + 1 &= \operatorname{csc}^2(x) \\ \operatorname{sen}(x \pm y) &= \operatorname{sen}(x)\cos(y) \pm \cos(x)\operatorname{sen}(y) \\ \cos(x \pm y) &= \cos(x)\cos(y) \pm \operatorname{sen}(x)\sin(y)\end{aligned}$$

$$\begin{aligned}\tan(x \pm y) &= [\tan(x) \pm \tan(y)]/[1 \pm \tan(x)\tan(y)] \\ \operatorname{sen}(2x) &= 2[\operatorname{sen}(x)\cos(x)] \\ \cos(2x) &= \cos^2(x) - \operatorname{sen}^2(x) = 2*\cos^2(x) - 1 = 1 - 2*\operatorname{sen}^2(x) \\ \tan(2x) &= 2\tan(x)/[1 - \tan^2(x)] \\ \operatorname{sen}^2(x) &= 1/2 - 1/2*\cos(2x) \\ \cos^2(x) &= 1/2 + 1/2*\cos(2x) \\ \operatorname{sen}(x) - \operatorname{sen}(y) &= 2*\operatorname{sen}[(x - y)/2]\cos[(x + y)/2] \\ \cos(x) - \cos(y) &= -2*\operatorname{sen}[(x - y)/2]\operatorname{sen}[(x + y)/2]\end{aligned}$$

2 Tabla Trig de Ángulos Ordinarios

ángulo	0	30	45	60	90
$\operatorname{sen}^2(a)$	0/4	1/4	2/4	3/4	4/4
$\cos^2(a)$	4/4	3/4	2/4	1/4	0/4
$\tan^2(a)$	0/4	1/3	2/2	3/1	4/0

3 Leyes trigonométricas

Dado un triángulo abc, con ángulos A,B,C; a está opuesto a A; b opuesto a B; c opuesto a C,

3.1 La Ley del Seno

$$a/\operatorname{sen}(A) = b/\operatorname{sen}(B) = c/\operatorname{sen}(C)$$

3.2 La Ley del Coseno

$$c^2 = a^2 + b^2 - 2ab \cos(C)$$

$$b^2 = a^2 + c^2 - 2ac \cos(B)$$

$$a^2 = b^2 + c^2 - 2bc \cos(A)$$

3.3 La Ley de la Tangente

$$(a - b)/(a + b) = \tan 1/2(A-B) / \tan 1/2(A+B)$$

Origen