

## Funções básicas de Trigonometria

Função	Abreviatura	Identidade trigonométrica
Seno	sen (ou sin)	$\sin heta \equiv \cos\Bigl(rac{\pi}{2} -  heta\Bigr) \equiv rac{1}{\csc heta}$
Cosseno	cos	$\cos heta \equiv \sin\Bigl(rac{\pi}{2} -  heta\Bigr) \equiv rac{1}{\sec heta}$
Tangente	tan (ou tg)	$ an heta \equiv rac{ ext{sen} heta}{ ext{cos} heta} \equiv  ext{cot}\Big(rac{\pi}{2} -  heta\Big) \equiv rac{1}{ ext{cot} heta}$
Cossecante	csc (ou cosec)	$\csc heta \equiv \sec\Bigl(rac{\pi}{2} -  heta\Bigr) \equiv rac{1}{\sin heta}$
Secante	sec	$\sec  heta \equiv \csc \left(rac{\pi}{2} -  heta ight) \equiv rac{1}{\cos  heta}$
Cotangente	cot (ou ctg ou ctn)	$\cot heta \equiv rac{\cos heta}{\sin heta} \equiv  an\Bigl(rac{\pi}{2} -  heta\Bigr) \equiv rac{1}{ an heta}$

# Algumas correspondências em trigonometria

$$sen(-\theta) = -sen\theta$$

$$\cos(-\theta) = \cos\theta$$

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

$$1 + \tan^2\theta = \sec^2\theta$$

$$1 + \cot^2\theta = \csc^2\theta$$

Lei dos Senos

$$sen 2θ = 2 sen θ . cos θ$$

$$\cos 2\theta = \cos^2\theta - \sin^2\theta$$

$$sen^2(\theta/2) = (1-\cos\theta)/2$$

$$\cos(\theta/2) = (1 + \cos\theta) / 2$$

$$\sec^2\theta = 1 + tg^2\theta$$

$$cosses^2\theta = 1 + cotg^2\theta$$

### Fórmulas de Adição e Subtração

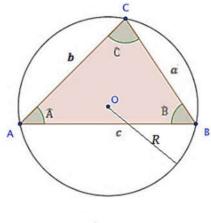
$$sen (θ + β) = senθ \cdot cosβ + senβ \cdot cosθ$$

$$sen (θ - β) = senθ \cdot cosβ - senβ \cdot cosθ$$

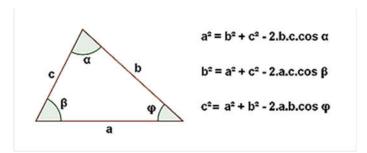
$$\cos(\theta + \beta) = \cos\theta \cdot \cos\beta - \sin\theta \cdot \sin\beta$$

$$\cos(\theta - \beta) = \cos\theta \cdot \cos\beta + \sin\theta \cdot \sin\beta$$

#### Lei dos cosenos



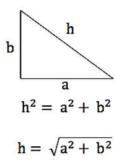
$$\frac{a}{\operatorname{sen}\hat{A}} = \frac{b}{\operatorname{sen}\hat{B}} = \frac{c}{\operatorname{sen}\hat{C}} = 2R$$



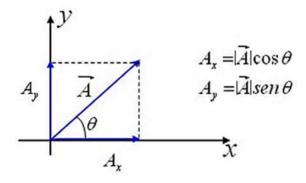


#### Triangulo retângulo

Num triângulo retângulo, o quadrado da hipotenusa é igual à soma dos quadrados dos catetos. (Teorema de Pitágoras)  $h^2=a^2+b^2$ 



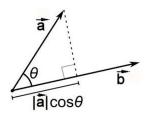
#### Componentes de um vetor



#### Produto interno ou escalar

$$\vec{a} \cdot \vec{b} = |\vec{a}| |\vec{b}| \cos \theta$$

$$\vec{a} \cdot \vec{b} = a_x b_x + a_y b_y + a_z b_z$$



#### Produto vetorial ou externo

$$\vec{a} \times \vec{b} = |\vec{a}| |\vec{b}| sen \theta \overrightarrow{n}$$

Ou

$$\vec{u} \times \vec{v} = \begin{vmatrix} b_1 & c_1 \\ b_2 & c_2 \end{vmatrix} \cdot \vec{i} - \begin{vmatrix} a_1 & c_1 \\ a_2 & c_2 \end{vmatrix} \cdot \vec{j} + \begin{vmatrix} a_1 & b_1 \\ a_2 & b_2 \end{vmatrix} \cdot \vec{k}$$

