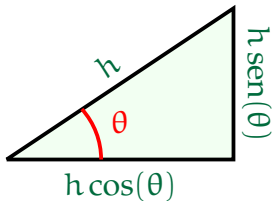
Uma página de trigonometria



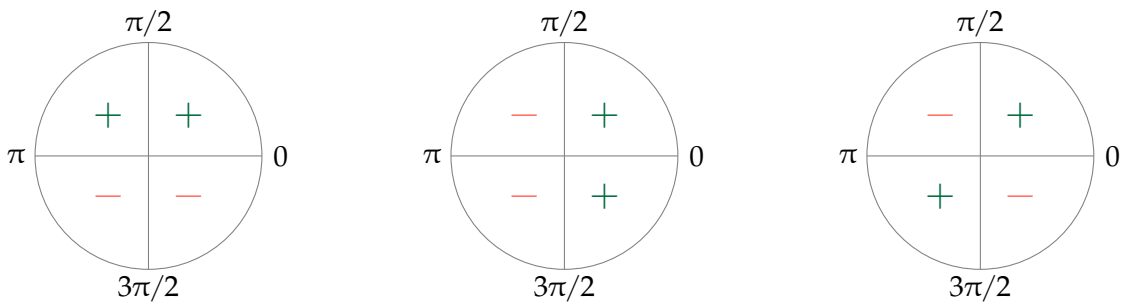
$$\operatorname{sen}^2(\theta) + \cos^2(\theta) = 1$$

$$1 + \operatorname{tg}^2(\theta) = \sec^2(\theta)$$

Definições

$$\operatorname{tg}(\theta) \equiv \frac{\operatorname{sen}(\theta)}{\cos(\theta)} \qquad \operatorname{cotg}(\theta) \equiv \frac{\cos\theta}{\operatorname{sen}(\theta)} \qquad \sec(\theta) \equiv \frac{1}{\cos(\theta)} \qquad \operatorname{cossec}(\theta) \equiv \frac{1}{\operatorname{sen}(\theta)}$$

Sinais



Adição e subtração

$$\operatorname{sen}(a \pm b) = \operatorname{sen}(a)\cos(b) \pm \operatorname{sen}(b)\cos(a)$$

$$\cos(a \pm b) = \cos(a)\cos(b) \mp \operatorname{sen}(a)\operatorname{sen}(b)$$

$$\operatorname{tg}(a \pm b) = \frac{\operatorname{tg}(a) \pm \operatorname{tg}(b)}{1 \mp \operatorname{tg}(a)\operatorname{tg}(b)}$$

Complemento e suplemento

$$\operatorname{sen}\left(\frac{\pi}{2} - a\right) = \cos(a) \qquad \cos\left(\frac{\pi}{2} - a\right) = \operatorname{sen}(a)$$

$$\operatorname{sen}(\pi - a) = \operatorname{sen}(a) \qquad \cos(\pi - a) = -\cos(a)$$

Dobro

$$\operatorname{sen}(2a) = 2\operatorname{sen}(a)\cos(a)$$

$$\cos(2a) = \cos^2(a) - \operatorname{sen}^2(a)$$

Metade

$$\operatorname{sen}\left(\frac{a}{2}\right) = \sqrt{\frac{1-\cos(a)}{2}} \qquad \operatorname{tg}\left(\frac{a}{2}\right) = \frac{\operatorname{sen}(a)}{1+\cos(a)}$$

$$\cos\left(\frac{a}{2}\right) = \sqrt{\frac{1+\cos(a)}{2}}$$

θ	sen(θ)	cos(θ)
0	0	1
π/6	1/2	$\sqrt{3}/2$
π/4	$\sqrt{2}/2$	$\sqrt{2}/2$
π/3	$\sqrt{3}/2$	1/2
π/2	1	0

Prostaférese

$$\operatorname{sen}(p) + \operatorname{sen}(q) = 2\operatorname{sen}\left(\frac{p+q}{2}\right)\cos\left(\frac{q-p}{2}\right)$$

$$\operatorname{sen}(p) - \operatorname{sen}(q) = 2\operatorname{sen}\left(\frac{p-q}{2}\right)\cos\left(\frac{q+p}{2}\right)$$

$$\cos(p) + \cos(q) = 2\cos\left(\frac{p+q}{2}\right)\cos\left(\frac{q-p}{2}\right)$$

$$\cos(p) - \cos(q) = 2\operatorname{sen}\left(\frac{p+q}{2}\right)\operatorname{sen}\left(\frac{q-p}{2}\right)$$

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