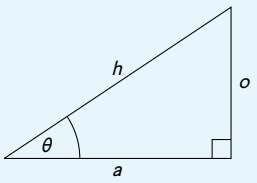
Fórmulas de Trigonometría

Razones rigonométricas en un triángulo rectángulo



Seno $\operatorname{sen}(\theta) = \frac{o}{h}$.

Coseno $\cos(\theta) = \frac{a}{h}$.

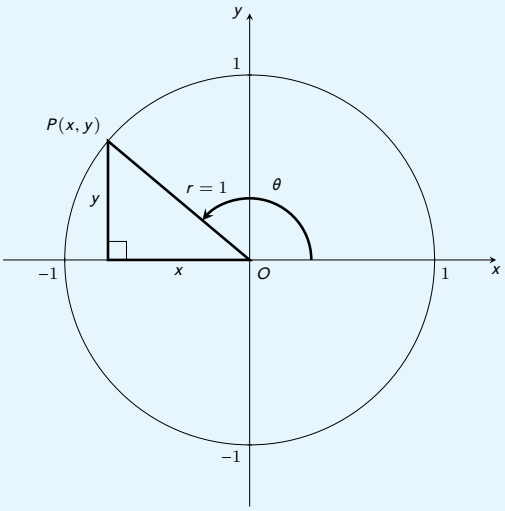
Tangente $\operatorname{tg}(\theta) = \frac{o}{a} = \frac{\sin(\theta)}{\cos(\theta)}$.

Secante $\sec(\theta) = \frac{h}{a} = \frac{1}{\cos(\theta)}$.

Cosecante $\operatorname{cosec}(\theta) = \frac{h}{o} = \frac{1}{\operatorname{sen}(\theta)}$.

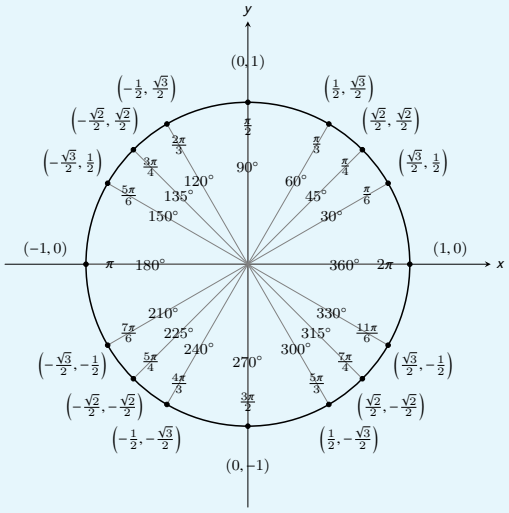
Cotangente $\operatorname{ctg}(\theta) = \frac{a}{o} = \frac{\cos(\theta)}{\operatorname{sen}(\theta)} = \frac{1}{\operatorname{tg}(\theta)}$.

Razones trigonométricas en el círculo unitario



$$\cos(\theta) = x \quad \operatorname{sen}(\theta) = y \quad \operatorname{tg}(\theta) = \frac{y}{x}$$

Razones trigonométricas de los principales ángulos

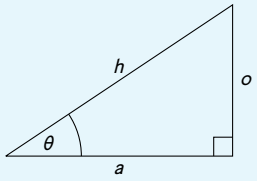


Conversión de ángulos

Grados a radianes $y = \frac{\pi \text{rad}}{180°} x$.

Radianes a grados $y = \frac{180°}{\pi \text{rad}} x$.

Teorema de pitágoras



$$a^2 + o^2 = h^2$$

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

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

$$1 + \operatorname{ctg}(\theta)^2 = \operatorname{cosec}(\theta)^2$$

Razones trigonométicas de sumas de ángulos

$$\operatorname{sen}(\alpha + \beta) = \operatorname{sen}(\alpha)\cos(\beta) + \cos(\alpha)\operatorname{sen}(\beta)$$

$$\operatorname{sen}(\alpha - \beta) = \operatorname{sen}(\alpha)\cos(\beta) - \cos(\alpha)\operatorname{sen}(\beta)$$

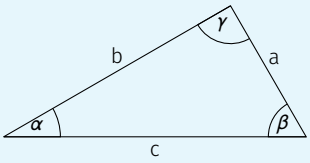
$$\cos(\alpha + \beta) = \cos(\alpha)\cos(\beta) - \operatorname{sen}(\alpha)\operatorname{sen}(\beta)$$

$$\cos(\alpha - \beta) = \cos(\alpha)\cos(\beta) + \operatorname{sen}(\alpha)\operatorname{sen}(\beta)$$

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

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

Teoremas de los senos y los cosenos



Teorema de los senos

$$\frac{a}{\operatorname{sen}(\alpha)} = \frac{b}{\operatorname{sen}(\beta)} = \frac{c}{\operatorname{sen}(\gamma)}$$

Teorema de los cosenos

$$a^2 = b^2 + c^2 - 2bc\cos(\alpha)$$
$$b^2 = a^2 + c^2 - 2ac\cos(\beta)$$
$$c^2 = a^2 + b^2 - 2ab\cos(\gamma)$$