

## EJERCICIOS DE TRIGONOMETRÍA: FÓRMULAS

$$\cos^2 \alpha + \operatorname{sen}^2 \alpha = 1$$

$$\cos^2 \alpha = \frac{1}{1 + \tan^2 \alpha}$$

**Ex 1:** Si  $\operatorname{sen} \alpha = 0.25$  calcula las otras cinco razones trigonométricas y el valor del ángulo  $\alpha$

$$\begin{aligned} \cos^2 \alpha + \operatorname{sen}^2 \alpha = 1 &\rightarrow \cos^2 \alpha = 1 - \operatorname{sen}^2 \alpha \rightarrow \cos \alpha = \sqrt{1 - \operatorname{sen}^2 \alpha} = \sqrt{1 - (0.25)^2} = \\ &= \sqrt{0.94} = 0.97 \rightarrow \boxed{\cos \alpha = 0.97} \end{aligned}$$

$$\tan \alpha = \frac{\operatorname{sen} \alpha}{\cos \alpha} = \frac{0.25}{0.97} = 0.26 \rightarrow \boxed{\tan \alpha = 0.26}$$

$$\sec \alpha = \frac{1}{\cos \alpha} = \frac{1}{0.97} = 1.03 \quad \csc \alpha = \frac{1}{\operatorname{sen} \alpha} = \frac{1}{0.25} = 4 \quad \cot \alpha = \frac{1}{\tan \alpha} = \frac{1}{0.26} = 3.85$$

$$\alpha = \operatorname{arc} \operatorname{sen}(0.25) = \sin^{-1}(0.25) = 14.48^\circ = 14^\circ 28' 39''$$

**Ex 2:** Si  $\tan \alpha = 1.4$  halla los valores de  $\cos \alpha$  y  $\operatorname{sen} \alpha$

$$\cos^2 \alpha = \frac{1}{1 + \tan^2 \alpha} = \frac{1}{1 + (1.4)^2} = 0.34 \rightarrow \cos \alpha = \sqrt{0.34} = 0.58$$

$$\tan \alpha = \frac{\operatorname{sen} \alpha}{\cos \alpha} \rightarrow \operatorname{sen} \alpha = \cos \alpha \cdot \tan \alpha = 0.58 \cdot 1.4 = 0.81$$