

FÓRMULAS DE TRIGONOMETRÍA

RAZONES TRIGONOMÉTRICAS

$$\operatorname{sen}(\alpha) = \frac{\text{cateto opuesto}}{\text{hipotenusa}}$$

$$\operatorname{cos}(\alpha) = \frac{\text{cateto contiguo}}{\text{hipotenusa}}$$

$$\operatorname{tg}(\alpha) = \frac{\text{cateto opuesto}}{\text{cateto contiguo}} = \frac{\operatorname{sen}(\alpha)}{\operatorname{cos}(\alpha)}$$

$$\operatorname{cosec}(\alpha) = \frac{\text{hipotenusa}}{\text{cateto opuesto}}$$

$$\operatorname{sec}(\alpha) = \frac{\text{hipotenusa}}{\text{cateto contiguo}}$$

$$\operatorname{cot} g(\alpha) = \frac{\text{cateto contiguo}}{\text{cateto opuesto}} = \frac{\operatorname{cos}(\alpha)}{\operatorname{sen}(\alpha)}$$

IDENTIDAD FUNDAMENTAL

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

TEOREMA DEL SENO

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

TEOREMA DEL COSENO

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

SUMA Y DIFERENCIA DE ÁNGULOS

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

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

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

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

$$\operatorname{tg}(a+b) = \frac{\operatorname{tg}(a) + \operatorname{tg}(b)}{1 - \operatorname{tg}(a) \operatorname{tg}(b)}$$

$$\operatorname{tg}(a-b) = \frac{\operatorname{tg}(a) - \operatorname{tg}(b)}{1 + \operatorname{tg}(a) \operatorname{tg}(b)}$$

ÁNGULO DOBLE

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

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

$$\operatorname{tg}(2a) = \frac{2 \operatorname{tg}(a)}{1 - \operatorname{tg}^2(a)}$$

ÁNGULO MITAD

$$\operatorname{sen} \frac{a}{2} = \sqrt{\frac{1 - \operatorname{cos}(a)}{2}}$$

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

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