

PROBLEMAS DE TRIGONOMETRÍA

Problema 161:

Demostrar que se verifica la siguiente igualdad:

$$\operatorname{sen}(a+b) \cdot \operatorname{sen}(a-b) = \operatorname{sen}^2 a - \operatorname{sen}^2 b$$

Solución Problema 161:

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

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

$$= \operatorname{sen}^2 a \cdot \cos^2 b - \cos^2 a \cdot \operatorname{sen}^2 b = \operatorname{sen}^2 a \cdot (1 - \operatorname{sen}^2 b) - [(1 - \operatorname{sen}^2 a) \cdot \operatorname{sen}^2 b]$$

$$= \operatorname{sen}^2 a - \operatorname{sen}^2 a \cdot \operatorname{sen}^2 b - [\operatorname{sen}^2 b - \operatorname{sen}^2 a \cdot \operatorname{sen}^2 b] =$$

$$= \operatorname{sen}^2 a - \operatorname{sen}^2 a \cdot \operatorname{sen}^2 b - \operatorname{sen}^2 b + \operatorname{sen}^2 a \cdot \operatorname{sen}^2 b = \operatorname{sen}^2 a - \operatorname{sen}^2 b$$