

### PAUTA DE EVALUACION

1. a)  $\csc(\sigma) - \sin(\sigma) = \cot(\sigma) \cos(\sigma)$

$$\begin{aligned}\csc(\sigma) - \sin(\sigma) &= \frac{1}{\operatorname{sen}(\theta)} - \operatorname{sen}(\theta) \\ &= \frac{1 - \operatorname{sen}^2(\theta)}{\operatorname{sen}(\theta)} \\ &= \frac{\cos^2(\theta)}{\operatorname{sen}(\theta)} \\ &= \frac{\cos(\theta)}{\operatorname{sen}(\theta)} \cdot \cos(\theta) \\ &= \cot(\theta) \cdot \cos(\theta)\end{aligned}$$

1. b)  $\frac{\csc^2(\sigma)}{1 + \tan^2(\sigma)} = \cot^2(\sigma)$

$$\begin{aligned}\frac{\csc^2(\sigma)}{1 + \tan^2(\sigma)} &= \frac{1}{\operatorname{sen}^2(\theta)} \\ &= \frac{\frac{1}{\operatorname{sen}^2(\theta)}}{\frac{1}{\cos^2(\theta)}} \\ &= \frac{1}{\operatorname{sen}^2(\theta)} \cdot \cos^2(\theta) \\ &= \cot^2(\theta)\end{aligned}$$

2) ¿Cuál es la medida del ángulo  $\alpha$ ?  
Utilizando el teorema del seno

$$\begin{aligned}\frac{\operatorname{sen}(20^\circ)}{10\text{cm}} &= \frac{\operatorname{sen}(\alpha)}{19\text{cm}} \\ \operatorname{sen}(\alpha) &= \frac{19 \cdot \operatorname{sen}(20^\circ)}{10\text{cm}} \quad / \text{Aplicando } \sin^{-1}() \\ \alpha &= \sin^{-1} \frac{19 \cdot \operatorname{sen}(20^\circ)}{10\text{cm}} \\ \alpha &\approx 40,53^\circ\end{aligned}$$

3) ¿Cuál es la medida del lado  $x$ ?

Utilizamos el teorema del coseno

$$\begin{aligned}x^2 &= 11^2 + 6^2 - 2 \cdot 11 \cdot 6 \cdot \cos(96^\circ) \\ x^2 &= 121 + 36 - 132 \cdot \cos(96^\circ) \\ x &= \sqrt{157 - 132 \cdot \cos(96^\circ)} \\ x &\approx 13,1 \text{ cm}\end{aligned}$$