

PROBLEMAS DE TRIGONOMETRÍA

Problema 192:

Reducir la siguiente expresión a otra, en la que no figure más que $\operatorname{tg} \delta$ y $\operatorname{tg} \gamma$:

$$\operatorname{sen}(\delta + \gamma) \cdot \operatorname{sen}(\delta - \gamma) \cdot \operatorname{sec}^2 \delta \cdot \operatorname{sec}^2 \gamma$$

Solución Problema 192:

$$\begin{aligned} \operatorname{sen}(\delta + \gamma) \cdot \operatorname{sen}(\delta - \gamma) \cdot \operatorname{sec}^2 \delta \cdot \operatorname{sec}^2 \gamma &= (\operatorname{sen} \delta \cdot \cos \gamma + \cos \delta \cdot \operatorname{sen} \gamma) \cdot (\operatorname{sen} \delta \cdot \cos \gamma - \cos \delta \cdot \operatorname{sen} \gamma) \cdot \operatorname{sec}^2 \delta \cdot \operatorname{sec}^2 \gamma \\ &= (\operatorname{sen}^2 \delta \cdot \cos^2 \gamma - \cos^2 \delta \cdot \operatorname{sen}^2 \gamma) \cdot \operatorname{sec}^2 \delta \cdot \operatorname{sec}^2 \gamma = \operatorname{sen}^2 \delta \cdot \cos^2 \gamma \cdot \operatorname{sec}^2 \delta \cdot \operatorname{sec}^2 \gamma - \cos^2 \delta \cdot \operatorname{sen}^2 \gamma \cdot \operatorname{sec}^2 \delta \cdot \operatorname{sec}^2 \gamma = \\ &= \operatorname{sen}^2 \delta \cdot \cos^2 \gamma \cdot \frac{1}{\cos^2 \delta} \cdot \frac{1}{\cos^2 \gamma} - \cos^2 \delta \cdot \operatorname{sen}^2 \gamma \cdot \frac{1}{\cos^2 \delta} \cdot \frac{1}{\cos^2 \gamma} = \frac{\operatorname{sen}^2 \delta}{\cos^2 \delta} - \frac{\operatorname{sen}^2 \gamma}{\cos^2 \gamma} = \operatorname{tg}^2 \delta - \operatorname{tg}^2 \gamma \end{aligned}$$