

PROBLEMAS DE TRIGONOMETRÍA

Problema 174:

Demostrar que se verifica la igualdad siguiente:

$$\frac{\sec^2 a + \operatorname{cosec}^2 a}{\sec a \cdot \operatorname{cosec} a} : (tg a + \operatorname{cotg} a) = 1$$

Solución Problema 174:

$$\begin{aligned} \frac{\sec^2 a + \operatorname{cosec}^2 a}{\sec a \cdot \operatorname{cosec} a} : (tg a + \operatorname{cotg} a) &= \frac{\sec^2 a + \operatorname{cosec}^2 a}{(\sec a \cdot \operatorname{cosec} a) \cdot (tg a + \operatorname{cotg} a)} = \\ \frac{\sec^2 a + \operatorname{cosec}^2 a}{(\sec a \cdot \operatorname{cosec} a \cdot tg a) + (\sec a \cdot \operatorname{cosec} a \cdot \operatorname{cotg} a)} &= \frac{\sec^2 a + \operatorname{cosec}^2 a}{\left(\frac{1}{\cos a} \cdot \frac{1}{\operatorname{sen} a} \cdot \frac{\operatorname{sen} a}{\cos a}\right) + \left(\frac{1}{\cos a} \cdot \frac{1}{\operatorname{sen} a} \cdot \frac{\cos a}{\operatorname{sen} a}\right)} = \\ = \frac{\sec^2 a + \operatorname{cosec}^2 a}{\frac{1}{\cos^2 a} + \frac{1}{\operatorname{sen}^2 a}} &= \frac{\sec^2 a + \operatorname{cosec}^2 a}{\sec^2 a + \operatorname{cosec}^2 a} = 1 \end{aligned}$$