Exercicis deTrigonometria

Exemple. *Demostra que*

$$\frac{\tan a}{\tan 2a - \tan a} = \cos 2a$$

$$\frac{\sin(a+b)}{\cos a \cos b} = \tan a + \tan b$$

En efecte,

- $\frac{\tan a}{\tan 2a - \tan a} = \frac{\frac{\sin a}{\cos a}}{\frac{\sin 2a}{\cos 2a} - \frac{\sin a}{\cos a}} = \frac{\frac{\sin a}{\cos a}}{\frac{2\sin a \cos a}{\cos^2 a - \sin^2 a} - \frac{\sin a}{\cos a}} = \frac{\frac{\sin a}{\cos a}}{\frac{2\sin a \cos^2 a - \sin a \cos^2 a + \sin^3 a}{\cos a \cdot (\cos^2 a - \sin^2 a)}} =$

  $\frac{\frac{\sin a}{\cos a}}{\frac{\sin a \cos^2 a + \sin^3 a}{\cos a(\cos^2 a - \sin^2 a)}} = \frac{\frac{\sin a}{\cos a}}{\frac{\sin a(\cos^2 a + \sin^2 a)}{\cos a(\cos^2 a - \sin^2 a)}} = \frac{\frac{\sin a}{\cos a}}{\frac{\sin a}{\cos a(\cos^2 a - \sin^2 a)}} = (\cos^2 a - \sin^2 a) = \cos 2a$

- $\frac{\sin(a+b)}{\cos a \cos b} = \frac{\sin a \cdot cosb + sinb \cdot cosa}{\cos a \cos b} = \frac{\sin a \cos b}{\cos a \cos b} + \frac{\sin b \cos a}{\cos a \cos b} = \frac{\sin a}{\sin b} + \frac{\sin b}{\cos b} = \tan a + \tan b$