1°. Kiindulunk a $\sin(\alpha+\beta+\gamma)=0$ egyenletből.

$$\sin\alpha\ \cos(\beta+\gamma)+\cos\alpha\ \sin(\beta+\gamma)=0,$$

$$\sin\alpha\ \cos\beta\ \cos\gamma-\sin\alpha\ \sin\beta\ \sin\gamma+\cos\alpha\ \sin\beta\ \cos\gamma+\cos\alpha\ \cos\beta\ \sin\gamma=0,$$

vagyis

$$\sin\alpha\ \cos\beta\ \cos\gamma+\sin\beta\ \cos\alpha\ \cos\gamma+\sin\gamma\ \cos\alpha\ \cos\beta=\sin\alpha\ \sin\beta\ \sin\gamma.$$

$$2°. \qquad \frac{\operatorname{ctg}\frac{\beta}{2}+\operatorname{ctg}\frac{\gamma}{2}}{\operatorname{ctg}\frac{\alpha}{2}+\operatorname{ctg}\frac{\gamma}{2}}=\frac{\frac{\sin\frac{\beta+\gamma}{2}}{\sin\frac{\beta}{2}\sin\frac{\gamma}{2}}}{\frac{\sin\frac{\alpha+\gamma}{2}}{\sin\frac{\alpha}{2}\sin\frac{\gamma}{2}}}=\frac{\frac{\cos\frac{\alpha}{2}}{\sin\frac{\beta}{2}}}{\frac{\cos\frac{\beta}{2}}{sin\frac{\alpha}{2}}}=$$

$$=\frac{\cos\frac{\alpha}{2}\sin\frac{\alpha}{2}}{\cos\frac{\beta}{2}\sin\frac{\beta}{2}}=\frac{2\sin\frac{\alpha}{2}\cos\frac{\alpha}{2}}{2\sin\frac{\beta}{2}\cos\frac{\beta}{2}}=\frac{\sin\alpha}{\sin\beta}.$$

(Strasser István, Budapest.)

Megoldások száma: 57.