

Zadatak 9. Dokaži: $\cos \frac{\pi}{5} - \cos \frac{2\pi}{5} = \frac{1}{2}$.

Rješenje.

$$\begin{aligned}\cos \frac{\pi}{5} - \cos \frac{2\pi}{5} &= 2 \sin \frac{\pi}{10} \cdot \sin \frac{3\pi}{10} = \frac{4 \sin \frac{\pi}{10} \cos \frac{\pi}{10} \sin \frac{3\pi}{10} \cos \frac{3\pi}{10}}{2 \cos \frac{\pi}{10} \cos \frac{3\pi}{10}} \\ &= \frac{\sin \frac{\pi}{5} \sin \frac{3\pi}{5}}{2 \cos \frac{\pi}{10} \cos \frac{3\pi}{10}} = \frac{\sin \frac{\pi}{5} \sin \frac{3\pi}{5}}{2 \sin \left(\frac{\pi}{2} + \frac{\pi}{10} \right) \sin \left(\frac{\pi}{2} - \frac{3\pi}{10} \right)} \\ &= \frac{\sin \frac{\pi}{5} \sin \frac{3\pi}{5}}{2 \sin \frac{3\pi}{5} \sin \frac{\pi}{5}} = \frac{1}{2}.\end{aligned}$$