



**Zadatak 4.** Izračunaj bez uporabe računala vrijednost brojevnog izraza:

1)  $\sin \frac{\pi}{10} \cdot \cos \frac{\pi}{5};$

2)  $\cos \frac{\pi}{7} \cdot \cos \frac{2\pi}{7} \cdot \cos \frac{4\pi}{7};$

3)  $\cos \frac{\pi}{9} \cdot \cos \frac{2\pi}{9} \cdot \cos \frac{4\pi}{9};$

**Rješenje.** 1)

$$\sin \frac{\pi}{10} \cdot \cos \frac{\pi}{5} = \frac{2 \sin \frac{\pi}{10} \cdot \cos \frac{\pi}{10} \cdot \cos \frac{\pi}{5}}{2 \cos \frac{\pi}{10}} = \frac{\sin \frac{\pi}{5} \cdot \cos \frac{\pi}{5}}{2 \cos \frac{\pi}{10}} = \frac{\sin \frac{2\pi}{5}}{4 \cos \frac{\pi}{10}} = \frac{1}{4};$$

2)

$$\cos \frac{\pi}{7} \cdot \cos \frac{2\pi}{7} \cdot \cos \frac{4\pi}{7} = \frac{2 \sin \frac{\pi}{7} \cdot \cos \frac{\pi}{7} \cdot \cos \frac{2\pi}{7} \cdot \cos \frac{4\pi}{7}}{2 \sin \frac{\pi}{7}} = \frac{\sin \frac{8\pi}{7}}{8 \sin \frac{\pi}{7}} = -\frac{1}{8};$$

3)

$$\cos \frac{\pi}{9} \cdot \cos \frac{2\pi}{9} \cdot \cos \frac{4\pi}{9} = \frac{\sin \frac{\pi}{9}}{8 \sin \frac{\pi}{9}} = \frac{1}{8}.$$