

Rješenja zadataka 2.2

Zadatak 1. Koristeći se tablicom provjeri sljedeće jednakosti:

- 1) $\sin \frac{\pi}{6} \cdot \cos \frac{\pi}{6} = \frac{1}{2} \sin \frac{\pi}{3}$;
- 2) $\cos^2 \frac{\pi}{3} - \sin^2 \frac{\pi}{3} = -\cos \frac{2\pi}{3}$;
- 3) $\sin \frac{2\pi}{3} \cdot \cos \frac{5\pi}{6} + \cos \frac{2\pi}{3} \cdot \sin \frac{5\pi}{6} = -1$;
- 4) $\cos \frac{2\pi}{3} \cdot \cos \frac{5\pi}{6} - \sin \frac{2\pi}{3} \cdot \sin \frac{5\pi}{6} = 0$.
- 5) $\frac{1 + \sin \frac{\pi}{3} - \cos \frac{\pi}{3}}{1 + \sin \frac{\pi}{3} + \cos \frac{\pi}{3}} = \operatorname{tg} \frac{\pi}{6}$.

Rješenje.

$$\begin{aligned}
 1) \quad \sin \frac{\pi}{6} \cdot \cos \frac{\pi}{6} &= \frac{1}{2} \sin \frac{\pi}{3} & 2) \quad \cos \frac{2\pi}{3} \cdot \cos \frac{5\pi}{6} - \sin \frac{2\pi}{3} \cdot \sin \frac{5\pi}{6} &= 0 \\
 \frac{1}{2} \cdot \frac{\sqrt{3}}{2} &= \frac{1}{2} \cdot \frac{\sqrt{3}}{2} & -\frac{1}{2} \cdot \left(-\frac{\sqrt{3}}{2}\right) - \frac{\sqrt{3}}{2} \cdot \frac{1}{2} &= 0 \\
 & & \frac{\sqrt{3}}{4} - \frac{\sqrt{3}}{4} &= 0 \\
 & & 0 &= 0
 \end{aligned}$$

$$\begin{aligned}
 3) \quad \sin \frac{2\pi}{3} \cdot \cos \frac{5\pi}{6} + \cos \frac{2\pi}{3} \cdot \sin \frac{5\pi}{6} &= -1 \\
 \frac{\sqrt{3}}{2} \cdot \left(-\frac{\sqrt{3}}{2}\right) + \left(-\frac{1}{2}\right) \cdot \frac{1}{2} &= -1 \\
 -\frac{3}{4} - \frac{1}{4} &= -1 \\
 -1 &= -1
 \end{aligned}$$

$$\begin{aligned}
 4) \quad \sin \frac{2\pi}{3} \cdot \cos \frac{5\pi}{6} + \cos \frac{2\pi}{3} \cdot \sin \frac{5\pi}{6} &= -1 \\
 \frac{\sqrt{3}}{2} \cdot \left(-\frac{\sqrt{3}}{2}\right) + \left(-\frac{1}{2}\right) \cdot \frac{1}{2} &= -1 \\
 -\frac{3}{4} - \frac{1}{4} &= -1 \\
 -1 &= -1
 \end{aligned}$$

$$5) \frac{1 + \sin \frac{\pi}{3} - \cos \frac{\pi}{3}}{1 + \sin \frac{\pi}{3} + \cos \frac{\pi}{3}} = \operatorname{tg} \frac{\pi}{6}$$

$$\frac{1 + \frac{\sqrt{3}}{2} - \frac{1}{2}}{1 + \frac{\sqrt{3}}{2} + \frac{1}{2}} = \frac{\sqrt{3}}{3}$$

$$\frac{\frac{1}{2} + \frac{\sqrt{3}}{2}}{\frac{3}{2} + \frac{\sqrt{3}}{2}} = \frac{\sqrt{3}}{3}$$

$$\frac{\frac{1 + \sqrt{3}}{2}}{\frac{3 + \sqrt{3}}{2}} = \frac{\sqrt{3}}{3}$$

$$\frac{1 + \sqrt{3}}{3 + \sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\frac{1 + \sqrt{3}}{3 + \sqrt{3}} \cdot \frac{3 - \sqrt{3}}{3 - \sqrt{3}} = \frac{\sqrt{3}}{3}$$

$$\frac{3 - \sqrt{3} + 3\sqrt{3} - 3}{9 - 3} = \frac{\sqrt{3}}{3}$$

$$\frac{2\sqrt{3}}{6} = \frac{\sqrt{3}}{3}$$

$$\frac{\sqrt{3}}{3} = \frac{\sqrt{3}}{3}$$