

**Zadatak 10.** Izračunaj:

$$1) \sin \frac{47\pi}{3} \cdot \cos \left( -\frac{57\pi}{6} \right);$$

$$2) \sin \left( -\frac{50\pi}{3} \right) \cdot \cos \frac{53\pi}{6};$$

$$3) \sin \frac{77\pi}{6} \cdot \cos \left( -\frac{58\pi}{3} \right);$$

$$4) \sin \left( -\frac{46\pi}{3} \right) \cdot \cos \frac{55\pi}{6};$$

$$5) \sin \left( -\frac{50\pi}{3} \right) \cdot \cos \frac{53\pi}{6};$$

$$6) \sin \frac{55\pi}{3} \cdot \operatorname{tg} \frac{77\pi}{6} - \cos \frac{77\pi}{6} \cdot \operatorname{ctg} \frac{44\pi}{3}.$$

**Rješenje.**

$$1) \sin \frac{47\pi}{3} \cdot \cos \left( -\frac{57\pi}{6} \right) = \sin \frac{47\pi}{3} \cdot \cos \left( -\frac{19\pi}{2} \right) = \sin \left( \frac{5\pi}{3} + 2 \cdot 7\pi \right) \cdot$$

$$\cos \left( \frac{\pi}{2} - 2 \cdot 5\pi \right) = \sin \frac{5\pi}{3} \cdot \cos \frac{\pi}{2} = -\frac{\sqrt{3}}{2} \cdot 0 = 0;$$

$$2) \sin \left( -\frac{50\pi}{3} \right) \cdot \cos \frac{53\pi}{6} = \sin \left( \frac{4\pi}{3} - 2 \cdot 9\pi \right) \cdot \cos \left( \frac{5\pi}{6} + 2 \cdot 4\pi \right) =$$

$$\sin \frac{4\pi}{3} \cdot \cos \frac{5\pi}{6} = -\frac{\sqrt{3}}{2} \cdot \left( -\frac{\sqrt{3}}{2} \right) = \frac{3}{4};$$

$$3) \sin \frac{77\pi}{6} \cdot \cos \left( -\frac{58\pi}{3} \right) = \sin \left( \frac{5\pi}{6} + 2 \cdot 6\pi \right) \cdot \cos \left( \frac{2\pi}{3} - 2 \cdot 30\pi \right) =$$

$$\sin \frac{5\pi}{6} \cdot \cos \frac{2\pi}{3} = \frac{1}{2} \cdot \left( -\frac{1}{2} \right) = -\frac{1}{4};$$

$$4) \sin \left( -\frac{46\pi}{3} \right) \cdot \cos \frac{55\pi}{6} = \sin \left( \frac{2\pi}{3} - 2 \cdot 8\pi \right) \cdot \cos \left( \frac{7\pi}{6} + 2 \cdot 4\pi \right) =$$

$$\sin \frac{2\pi}{3} \cdot \cos \frac{7\pi}{6} = \frac{\sqrt{3}}{2} \cdot \left( -\frac{\sqrt{3}}{2} \right) = -\frac{3}{4};$$

$$5) \sin \left( -\frac{50\pi}{3} \right) \cdot \cos \frac{53\pi}{6} = \sin \left( \frac{4\pi}{3} - 2 \cdot 9\pi \right) \cdot \cos \left( \frac{5\pi}{6} + 2 \cdot 4\pi \right) =$$

$$\sin \frac{4\pi}{3} \cdot \cos \frac{5\pi}{6} = -\frac{\sqrt{3}}{2} \cdot \left( -\frac{\sqrt{3}}{2} \right) = \frac{3}{4};$$

$$6) \sin \frac{55\pi}{3} \cdot \operatorname{tg} \frac{77\pi}{6} - \cos \frac{77\pi}{6} \cdot \operatorname{ctg} \frac{44\pi}{3} = \sin \left( \frac{\pi}{3} + 9 \cdot 2\pi \right) \cdot \operatorname{tg} \left( \frac{5\pi}{6} + 12\pi \right) -$$

$$\cos \left( \frac{5\pi}{6} + 6 \cdot 2\pi \right) \cdot \operatorname{ctg} \left( \frac{2\pi}{3} + 14\pi \right) = \sin \frac{\pi}{3} \cdot \operatorname{tg} \frac{5\pi}{6} - \cos \frac{5\pi}{6} \cdot \operatorname{ctg} \frac{2\pi}{3} =$$

$$\frac{\sqrt{3}}{2} \cdot \left( -\frac{\sqrt{3}}{3} \right) - \left( -\frac{\sqrt{3}}{2} \right) \cdot \left( -\frac{\sqrt{3}}{3} \right) = -\frac{3}{6} - \frac{3}{6} = -1.$$