

■ Rješenja zadatka 1.7

Zadatak 1. Dani su brojevi $z_1 = \frac{2}{3} \left(\cos \frac{7}{5}\pi + i \sin \frac{7}{5}\pi \right)$, $z_2 = \frac{3}{4} \left(\cos \frac{5\pi}{9} + i \sin \frac{5\pi}{9} \right)$.
Izračunaj z_1^3 i z_2^4 .

Rješenje. $z_1 = \frac{2}{3} \left(\cos \frac{7}{5}\pi + i \sin \frac{7}{5}\pi \right)$, $z_2 = \frac{3}{4} \left(\cos \frac{5\pi}{9} + i \sin \frac{5\pi}{9} \right)$,

$$z_1^3 = \left[\frac{2}{3} \left(\cos \frac{7}{5}\pi + i \sin \frac{7}{5}\pi \right) \right]^3 = \frac{8}{27} \left(\cos \frac{21\pi}{5} + i \sin \frac{21\pi}{5} \right) = \frac{8}{27} \left(\cos \frac{\pi}{5} + i \sin \frac{\pi}{5} \right)$$

$$z_2^4 = \left[\frac{3}{4} \left(\cos \frac{5\pi}{9} + i \sin \frac{5\pi}{9} \right) \right]^4 = \frac{81}{256} \left(\cos \frac{20\pi}{9} + i \sin \frac{20\pi}{9} \right) = \frac{81}{256} \left(\cos \frac{2\pi}{9} + i \sin \frac{2\pi}{9} \right).$$