

Zadatak 19. Koliko je:

$$1) \frac{\sqrt{2}\left(\cos \frac{\pi}{9} + i \sin \frac{\pi}{9}\right)}{0.5(\cos 110^\circ + i \sin 110^\circ)};$$

$$2) \frac{\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}}{\sqrt{3}\left(\cos \frac{11\pi}{6} + i \sin \frac{11\pi}{6}\right)}?$$

Rješenje.

$$1) \frac{\sqrt{2}\left(\cos \frac{\pi}{9} + i \sin \frac{\pi}{9}\right)}{0.5(\cos 110^\circ + i \sin 110^\circ)} = \frac{\sqrt{2}\left(\cos \frac{\pi}{9} + i \sin \frac{\pi}{9}\right)}{\frac{1}{2}\left(\cos \frac{11\pi}{18} + i \sin \frac{11\pi}{18}\right)} = 2\sqrt{2}\left(\cos\left(\frac{\pi}{9} - \frac{11\pi}{18}\right) + i \sin\left(\frac{\pi}{9} - \frac{11\pi}{18}\right)\right) = 2\sqrt{2}\left(\cos\left(-\frac{\pi}{2}\right) + i \sin\left(-\frac{\pi}{2}\right)\right) = 2\sqrt{2}\left(\cos \frac{3\pi}{2} + i \sin \frac{3\pi}{2}\right) = -2i\sqrt{2};$$

$$2) \frac{\cos \frac{\pi}{3} + i \sin \frac{\pi}{3}}{\sqrt{3}\left(\cos \frac{11\pi}{6} + i \sin \frac{11\pi}{6}\right)} = \frac{\sqrt{3}}{3}\left(\cos\left(\frac{\pi}{3} - \frac{11\pi}{6}\right) + i \sin\left(\frac{\pi}{3} - \frac{11\pi}{6}\right)\right) = \frac{\sqrt{3}}{3}\left(\cos\left(-\frac{3\pi}{2}\right) + i \sin\left(-\frac{3\pi}{2}\right)\right) = \frac{\sqrt{3}}{3}\left(\cos \frac{\pi}{2} + i \sin \frac{\pi}{2}\right) = \frac{\sqrt{3}}{3}i.$$