

Zadatak 39. Ako je $f\left(x - \frac{\pi}{2}\right) = \sin x + \cos x$, koliko je $f\left(\frac{4\pi}{3}\right) \cdot f\left(\frac{5\pi}{6}\right)$?

Rješenje. $f\left(x - \frac{\pi}{2}\right) = \sin x + \cos x$,

$$x - \frac{\pi}{2} = t \implies x = t + \frac{\pi}{2};$$

$$f(t) = \sin\left(\frac{\pi}{2} + t\right) + \cos\left(\frac{\pi}{2} + t\right) = \cos t - \sin t;$$

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

$$= \left(-\frac{1}{2} + \frac{\sqrt{3}}{2}\right) \left(-\frac{\sqrt{3}}{2} - \frac{1}{2}\right) = \left(\frac{1}{2} - \frac{\sqrt{3}}{2}\right) \left(\frac{1}{2} + \frac{\sqrt{3}}{2}\right) = \frac{1}{4} - \frac{3}{4} = -\frac{1}{2}.$$