



Zadatak 7. Izračunaj $\sin(\alpha + \beta)$ i $\cos(\alpha - \beta)$ ako je $\sin \alpha = -\frac{3}{5}$, $\cos \beta = \frac{4}{5}$, te $\pi < \alpha < \frac{3\pi}{2}$, $\frac{3\pi}{2} < \beta < 2\pi$.

Rješenje. $\sin \alpha = -\frac{3}{5}$, $\pi < \alpha < \frac{3\pi}{2} \implies \cos \alpha < 0$:

$$\cos \alpha = -\sqrt{1 - \sin^2 \alpha} = -\sqrt{1 - \frac{9}{25}} = -\sqrt{\frac{16}{25}} = -\frac{4}{5}$$

$\cos \beta = \frac{4}{5}$, $\frac{3\pi}{2} < \beta < 2\pi \implies \sin \beta < 0$:

$$\sin \beta = -\sqrt{1 - \cos^2 \beta} = -\sqrt{1 - \frac{16}{25}} = -\sqrt{\frac{9}{25}} = -\frac{3}{5}$$

$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta = -\frac{3}{4} \cdot \frac{4}{5} + \left(-\frac{4}{5}\right) \cdot \left(-\frac{3}{5}\right) = -\frac{12}{25} + \frac{12}{25} = 0$$

$$\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta = -\frac{4}{5} \cdot \frac{4}{5} + \left(-\frac{3}{5}\right) \cdot \left(-\frac{3}{5}\right) = -\frac{16}{25} + \frac{9}{25} = -\frac{7}{25}$$