

**Zadatak 12.** Koliko je  $\sin\left(\frac{\pi}{3} + \alpha\right)$  i  $\cos\left(\frac{\pi}{3} - \alpha\right)$  ako je  $\sin \alpha = -\frac{8}{17}$ , te  $\frac{3\pi}{2} < \alpha < 2\pi$ ?

**Rješenje.**  $\frac{3\pi}{2} < \alpha < 2\pi \implies \cos \alpha > 0, \sin \alpha < 0$

$$\sin \alpha = -\frac{8}{17}$$

$$\cos \alpha = \sqrt{1 - \sin^2 \alpha} = \sqrt{1 - \frac{64}{289}} = \frac{15}{17}$$

$$\sin\left(\frac{\pi}{3} + \alpha\right) = \sin \frac{\pi}{3} \cos \alpha + \cos \frac{\pi}{3} \sin \alpha = \frac{\sqrt{3}}{2} \cdot \frac{15}{17} + \frac{1}{2} \cdot \left(-\frac{8}{17}\right) = \frac{1}{34}(15\sqrt{3} - 8)$$

$$\cos\left(\frac{\pi}{3} - \alpha\right) = \cos \frac{\pi}{3} \cos \alpha + \sin \frac{\pi}{3} \sin \alpha = \frac{1}{2} \cdot \frac{15}{17} + \frac{\sqrt{3}}{2} \cdot \left(-\frac{8}{17}\right) = \frac{1}{34}(15 - 8\sqrt{3}).$$