

Zadatak 4. Izračunaj $\operatorname{ctg} 2\alpha$ iz $\sin \alpha = \frac{8}{17}$ ako je $\frac{\pi}{2} < \alpha < \pi$.

Rješenje. $\frac{\pi}{2} < \alpha < \pi$, $\cos \alpha < 0$

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

$$\operatorname{ctg} \alpha = \frac{\cos \alpha}{\sin \alpha} = -\frac{15}{8}$$

$$\operatorname{ctg} 2\alpha = \frac{\operatorname{ctg}^2 \alpha - 1}{2 \operatorname{ctg} \alpha} = \frac{\frac{225}{64} - 1}{2 \cdot \left(-\frac{15}{8}\right)} = \frac{\frac{161}{64}}{-\frac{30}{8}} = -\frac{161}{240}$$