

Zadatak 12. Odredi šiljasti kut α za koji je
 $\operatorname{tg} \alpha = \sqrt{6} + \sqrt{3} - \sqrt{2} - 2$.

Rješenje.

$$\begin{aligned} \operatorname{tg} \alpha &= \sqrt{3}(\sqrt{2} + 1) - \sqrt{2}(\sqrt{2} + 1) = (\sqrt{3} - \sqrt{2})(\sqrt{2} + 1) \cdot \frac{\sqrt{2} - 1}{\sqrt{2} - 1} = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{2} - 1} \\ &= \frac{\frac{\sqrt{3}}{2} - \frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2} - \frac{1}{2}} = \frac{\sin 60^\circ - \sin 45^\circ}{\sin 45^\circ - \sin 30^\circ} = \frac{2 \cos \frac{60^\circ + 45^\circ}{2} \sin \frac{60^\circ - 45^\circ}{2}}{2 \cos \frac{45^\circ + 30^\circ}{2} \sin \frac{45^\circ - 30^\circ}{2}} \\ &= \frac{\cos \frac{105^\circ}{2} \sin \frac{15^\circ}{2}}{\cos \frac{75^\circ}{2} \sin \frac{15^\circ}{2}} = \frac{\cos \frac{105^\circ}{2}}{\cos \frac{75^\circ}{2}} = \frac{\sin\left(90^\circ - \frac{105^\circ}{2}\right)}{\cos \frac{75^\circ}{2}} = \frac{\sin \frac{75^\circ}{2}}{\cos \frac{75^\circ}{2}} = \operatorname{tg} \frac{75^\circ}{2}, \end{aligned}$$

te je $\alpha = 37^\circ 30'$