

Zadatak 21. Ako je $\frac{\cos 2x}{\cos x + \sin x} = \sin x$, koliko je $\operatorname{tg} 2x$?

Rješenje.

$$\frac{\cos 2x}{\cos x + \sin x} = \frac{\cos^2 x - \sin^2 x}{\cos x + \sin x} = \frac{(\cos x - \sin x)(\cos x + \sin x)}{\cos x + \sin x} = \cos x - \sin x$$

$$\implies \cos x - \sin x = \sin x \implies \cos x = 2 \sin x$$

$$\operatorname{tg} x = \frac{\sin x}{\cos x} = \frac{\sin x}{2 \sin x} = \frac{1}{2}$$

$$\operatorname{tg} 2x = \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x} = \frac{2 \cdot \frac{1}{2}}{1 - \frac{1}{4}} = \frac{1}{\frac{3}{4}} = \frac{4}{3}$$