

Zadatak 2. Dokaži da za sve realne brojeve x vrijedi $\sin x \cdot \cos x \leq \frac{1}{2}$.

Rješenje.

$$\sin x \cdot \cos x \leq \frac{1}{2}$$

$$2 \sin x \cdot \cos x \leq 1$$

$$2 \sin x \cdot \cos x - 1 \leq 0$$

$$2 \sin x \cdot \cos x - \sin^2 x - \cos^2 x \leq 0$$

$$-(\sin^2 x - 2 \sin x \cdot \cos x + \cos^2 x) \leq 0$$

$$-(\sin x - \cos x)^2 \leq 0$$