Zadatak 28. Ako je $\operatorname{tg}(-x) = -3\operatorname{ctg} x$, $-\frac{9\pi}{2} < x < -4\pi$, koliko je $\sin(-x)\cdot\cos(-x)$?

Rješenje. $-\frac{9\pi}{2} < x < -4\pi \implies \frac{3\pi}{2} < x < 2\pi$ (IV. kvadrant $\cos x > 0$, $\sin x$, $\operatorname{tg} x$, $\operatorname{ctg} x < 0$)

$$\begin{aligned} \operatorname{tg}(-x) &= -3\operatorname{ctg} x \\ -\operatorname{tg} x &= -3\operatorname{ctg} x \\ \operatorname{tg} x &= 3\frac{1}{\operatorname{tg} x} \\ \operatorname{tg}^2 x &= 3 \\ \operatorname{tg} x &= \sqrt{3} \end{aligned}$$

$$\cos(-x) = \cos x = \sqrt{\frac{1}{1+\operatorname{tg}^2 x}} = \sqrt{\frac{1}{1+3}} = \sqrt{\frac{1}{4}} = \frac{1}{2}$$

$$\sin x = -\sqrt{1-\cos^2 x} = -\sqrt{1-\frac{1}{4}} = -\frac{\sqrt{3}}{2}$$

$$\sin(-x)\cdot\cos(-x) = -\sin x\cos x = -\left(-\frac{\sqrt{3}}{2}\right)\cdot\frac{1}{2} = \frac{\sqrt{3}}{4}.$$