Zadatak 5. **1)** Ako je $x \in \left\langle \frac{\pi}{2}, \pi \right\rangle$, onda je $\sqrt{\frac{1+\sin x}{1-\sin x}} - \sqrt{\frac{1-\sin x}{1+\sin x}} = -2\operatorname{tg} x$.

2) Ako je $x \in \left\langle \pi, \frac{3\pi}{2} \right\rangle$, onda je $\sqrt{\frac{1-\cos x}{1+\cos x}} - \sqrt{\frac{1+\cos x}{1-\cos x}} = 2\operatorname{ctg} x$.

Rješenje. **1)** $\sqrt{\frac{1+\sin x}{1-\sin x}} - \sqrt{\frac{1-\sin x}{1+\sin x}} = \frac{\sqrt{1+\sin x}}{\sqrt{1-\sin x}} - \frac{\sqrt{1-\sin x}}{\sqrt{1+\sin x}} = \frac{\sqrt{1+\sin x}^2 - \sqrt{1-\sin x}^2}{\sqrt{(1-\sin x)(1+\sin x)}} = \frac{2\sin x}{\sqrt{1-\sin^2 x}} = \frac{2\sin x}{\sqrt{\cos^2 x}} = \left(x \in \left\langle \frac{\pi}{2}, \pi \right\rangle, \quad \cos x < 0\right) = \frac{2\sin x}{-\cos x} = -2 \cdot \frac{\sin x}{\cos x} = -2\operatorname{tg} x;$

2) $\sqrt{\frac{1-\cos x}{1+\cos x}} - \sqrt{\frac{1+\cos x}{1-\cos x}} = \frac{\sqrt{1-\cos x}^2 - \sqrt{1+\cos x}^2}{\sqrt{(1-\cos x)(1+\cos x)}} = \frac{1-\cos x-(1+\cos x)}{\sqrt{1-\cos^2 x}} = \frac{-2\cos x}{\sqrt{\sin^2 x}} = \left(x \in \left\langle \pi, \frac{3\pi}{2} \right\rangle, \quad \sin x < 0\right) = \frac{-2\cos x}{-\sin x} = 2 \cdot \frac{\cos x}{\sin x} = 2\operatorname{ctg} x.$