Zadatak 2.   Izračunaj:

1) $\dfrac{\sin 35° + \sin 85°}{\sin 65°}$;

2) $\dfrac{\cos 24° - \cos 84°}{\cos 36°}$;

3) $\dfrac{\sin 37° - \sin 53°}{1 - 2\cos^2 41°}$;

4) $\dfrac{\cos 41° - \cos 79°}{1 - 2\sin^2 35°30'}$.

Rješenje.   **1)**

$$\frac{\sin 35° + \sin 85°}{\sin 65°} = \frac{2\sin\dfrac{35° + 85°}{2}\cos\dfrac{35° - 85°}{2}}{\sin 65°} = \frac{2\sin 60°\cos(-25°)}{\sin 65°}$$

$$= \frac{2\cdot\dfrac{\sqrt{3}}{2}\sin(90° - 25°)}{\sin 65°} = \frac{\sqrt{3}\sin 65°}{\sin 65°} = \sqrt{3}$$

2)

$$\frac{\cos 24° - \cos 84°}{\cos 36°} = \frac{-2\sin\dfrac{24° + 84°}{2}\sin\dfrac{24° - 84°}{2}}{\cos 36°} = \frac{-2\sin 54°\sin(-30°)}{\cos 36°}$$

$$= \frac{2\sin 54°\sin 30°}{\cos 36°} = \frac{2\cdot\dfrac{1}{2}\cos(90° - 54°)}{\cos 36°} = \frac{\cos 36°}{\cos 36°} = 1$$

3)

$$\frac{\sin 37° - \sin 53°}{1 - 2\cos^2 41°} = \frac{2\cos\dfrac{37° + 53°}{2}\sin\dfrac{37° - 53°}{2}}{\sin^2 41° + \cos^2 41° - 2\cos^2 41°} = \frac{2\cos 45°\sin(-8°)}{\sin^2 41° - \cos^2 41°}$$

$$= \frac{-2\cdot\dfrac{\sqrt{2}}{2}\sin 8°}{-\cos(2\cdot 41)°} = \frac{-\sqrt{2}\sin 8°}{-\cos 82°} = \frac{-\sqrt{2}\cos(90° - 8°)}{-\cos 82°}$$

$$= \frac{-\sqrt{2}\cos 82°}{-\cos 82°} = \sqrt{2}$$

4)

$$\frac{\cos 41° - \cos 79°}{1 - 2\sin^2 35°30'} = \frac{-2\sin\dfrac{41° + 79°}{2}\sin\dfrac{41° - 79°}{2}}{\cos(2\cdot 35°30')} = \frac{-2\sin 60°\sin(-19°)}{\cos 71°}$$

$$= \frac{2\cdot\dfrac{\sqrt{3}}{2}\sin 19°}{\sin(90° - 71°)} = \frac{\sqrt{3}\sin 19°}{\sin 19°} = \sqrt{3}$$