

**Zadatak 2.** Izračunaj:

$$\begin{array}{ll}
 1) \frac{\sin 35^\circ + \sin 85^\circ}{\sin 65^\circ}; & 2) \frac{\cos 24^\circ - \cos 84^\circ}{\cos 36^\circ}; \\
 3) \frac{\sin 37^\circ - \sin 53^\circ}{1 - 2 \cos^2 41^\circ}; & 4) \frac{\cos 41^\circ - \cos 79^\circ}{1 - 2 \sin^2 35^\circ 30'}.
 \end{array}$$

**Rješenje.**

1)

$$\begin{aligned}
 \frac{\sin 35^\circ + \sin 85^\circ}{\sin 65^\circ} &= \frac{2 \sin \frac{35^\circ + 85^\circ}{2} \cos \frac{35^\circ - 85^\circ}{2}}{\sin 65^\circ} = \frac{2 \sin 60^\circ \cos(-25^\circ)}{\sin 65^\circ} \\
 &= \frac{2 \cdot \frac{\sqrt{3}}{2} \sin(90^\circ - 25^\circ)}{\sin 65^\circ} = \frac{\sqrt{3} \sin 65^\circ}{\sin 65^\circ} = \sqrt{3}
 \end{aligned}$$

2)

$$\begin{aligned}
 \frac{\cos 24^\circ - \cos 84^\circ}{\cos 36^\circ} &= \frac{-2 \sin \frac{24^\circ + 84^\circ}{2} \sin \frac{24^\circ - 84^\circ}{2}}{\cos 36^\circ} = \frac{-2 \sin 54^\circ \sin(-30^\circ)}{\cos 36^\circ} \\
 &= \frac{2 \sin 54^\circ \sin 30^\circ}{\cos 36^\circ} = \frac{2 \cdot \frac{1}{2} \cos(90^\circ - 54^\circ)}{\cos 36^\circ} = \frac{\cos 36^\circ}{\cos 36^\circ} = 1
 \end{aligned}$$

3)

$$\begin{aligned}
 \frac{\sin 37^\circ - \sin 53^\circ}{1 - 2 \cos^2 41^\circ} &= \frac{2 \cos \frac{37^\circ + 53^\circ}{2} \sin \frac{37^\circ - 53^\circ}{2}}{\sin^2 41^\circ + \cos^2 41^\circ - 2 \cos^2 41^\circ} = \frac{2 \cos 45^\circ \sin(-8^\circ)}{\sin^2 41^\circ - \cos^2 41^\circ} \\
 &= \frac{-2 \cdot \frac{\sqrt{2}}{2} \sin 8^\circ}{-\cos(2 \cdot 41^\circ)} = \frac{-\sqrt{2} \sin 8^\circ}{-\cos 82^\circ} = \frac{-\sqrt{2} \cos(90^\circ - 8^\circ)}{-\cos 82^\circ} \\
 &= \frac{-\sqrt{2} \cos 82^\circ}{-\cos 82^\circ} = \sqrt{2}
 \end{aligned}$$

4)

$$\begin{aligned}
 \frac{\cos 41^\circ - \cos 79^\circ}{1 - 2 \sin^2 35^\circ 30'} &= \frac{-2 \sin \frac{41^\circ + 79^\circ}{2} \sin \frac{41^\circ - 79^\circ}{2}}{\cos(2 \cdot 35^\circ 30')} = \frac{-2 \sin 60^\circ \sin(-19^\circ)}{\cos 71^\circ} \\
 &= \frac{2 \cdot \frac{\sqrt{3}}{2} \sin 19^\circ}{\sin(90^\circ - 71^\circ)} = \frac{\sqrt{3} \sin 19^\circ}{\sin 19^\circ} = \sqrt{3}
 \end{aligned}$$