

I. megoldás.

$$\begin{aligned} & \frac{2 \cos 40^\circ - \cos 20^\circ}{\sin 20^\circ} = \frac{2 \cos (60^\circ - 20^\circ) - \cos 20^\circ}{\sin 20^\circ} = \\ &= \frac{2(\cos 60^\circ \cdot \cos 20^\circ + \sin 60^\circ \cdot \sin 20^\circ) - \cos 20^\circ}{\sin 20^\circ} = \\ &= \frac{2\left(\frac{1}{2} \cdot \cos 20^\circ + \frac{\sqrt{3}}{2} \cdot \sin 20^\circ\right) - \cos 20^\circ}{\sin 20^\circ} = \\ &= \frac{\cos 20^\circ + \sqrt{3} \cdot \sin 20^\circ - \cos 20^\circ}{\sin 20^\circ} = \\ &= \frac{\sqrt{3} \cdot \sin 20^\circ}{\sin 20^\circ} = \sqrt{3}. \end{aligned}$$

II. megoldás.

$$\begin{aligned} & \frac{2 \cos 40^\circ - \cos 20^\circ}{\sin 20^\circ} = \frac{2 \cos (30^\circ + 10^\circ) - \cos (30^\circ - 10^\circ)}{\sin (30^\circ - 10^\circ)} = \\ &= \frac{2(\cos 30^\circ \cos 10^\circ - \sin 30^\circ \sin 10^\circ) - (\cos 30^\circ \cos 10^\circ + \sin 30^\circ \sin 10^\circ)}{\sin 30^\circ \cos 10^\circ - \sin 10^\circ \cos 30^\circ} = \\ &= \frac{2\left(\frac{\sqrt{3}}{2} \cdot \cos 10^\circ - \frac{1}{2} \cdot \sin 10^\circ\right) - \frac{\sqrt{3}}{2} \cdot \cos 10^\circ - \frac{1}{2} \cdot \sin 10^\circ}{\frac{1}{2} \cdot \cos 10^\circ - \frac{\sqrt{3}}{2} \cdot \sin 10^\circ} = \\ &= \frac{\sqrt{3} \cdot \cos 10^\circ - \sin 10^\circ - \frac{\sqrt{3}}{2} \cdot \cos 10^\circ - \frac{1}{2} \cdot \sin 10^\circ}{\frac{1}{2} \cdot (\cos 10^\circ - \sqrt{3} \cdot \sin 10^\circ)} = \\ &= \frac{\frac{\sqrt{3}}{2} \cdot \cos 10^\circ - \frac{3}{2} \cdot \sin 10^\circ}{\frac{1}{2} \cdot (\cos 10^\circ - \sqrt{3} \cdot \sin 10^\circ)} = \frac{\frac{\sqrt{3}}{2} \cdot \cos 10^\circ - \frac{(\sqrt{3})^2}{2} \cdot \sin 10^\circ}{\frac{1}{2} \cdot (\cos 10^\circ - \sqrt{3} \cdot \sin 10^\circ)} = \\ &= \frac{\frac{\sqrt{3}}{2} \cdot (\cos 10^\circ - \sqrt{3} \cdot \sin 10^\circ)}{\frac{1}{2} \cdot (\cos 10^\circ - \sqrt{3} \cdot \sin 10^\circ)} = \sqrt{3}. \end{aligned}$$