

GONIOMETRICKÉ ROVNICE

Pr: Řešte v \mathbb{R} goniometrické rovnice.

1) $3 \cotg \frac{x}{2} = -\sqrt{3}$

$$\cotg \frac{x}{2} = -\frac{\sqrt{3}}{3}$$

$$\frac{x}{2} = \frac{2}{3}\pi + k\pi \quad | \cdot 2$$

$$\underline{x = \frac{4}{3}\pi + 2k\pi, \quad k \in \mathbb{Z}}$$

2) $\sin(x + \frac{\pi}{6}) = \frac{1}{2}$

$$x + \frac{\pi}{6} = \frac{\pi}{6} + 2k\pi$$

$$x + \frac{\pi}{6} = \frac{5}{6}\pi + 2k\pi$$

$$\underline{x_1 = 2k\pi, \quad k \in \mathbb{Z}}$$

$$\underline{x_2 = \frac{2}{3}\pi + 2k\pi, \quad k \in \mathbb{Z}}$$

3) $\cos^2 x - \cos x - 2 = 0$

$$\cos x = t \quad \rightarrow \quad t^2 - t - 2 = 0$$

$$(t+1)(t-2) = 0$$

$$t_1 = -1 \Rightarrow \cos x = -1 \Rightarrow \underline{x = \pi + 2k\pi, \quad k \in \mathbb{Z}}$$

$$t_2 = 2 \Rightarrow \cos x = 2 \dots \text{neplatí pro žádné } x \in \mathbb{R}.$$