Trigonometrie Aufgabe 261

$3 \cos 2x + 7 \cos x = 0$

$3 * (\cos^2 x - \sin^2 x) + 7 * \cos x = 0$

$3 * \cos^2 x - 3 * \sin^2 x + 7 * \cos x = 0$

$3 * \cos^2 x - 3 * (1 - \cos^2 x) + 7 * \cos x = 0$

$3 * \cos^2 x - 3 + 3 * \cos^2 x + 7 * \cos x = 0$

$6 * \cos^2 x + 7 * \cos x - 3 = 0$

A, B, C – Formel:

A = 6, B = 7, C = - 3

$$\cos x_{1,2} = \frac{-7 \pm \sqrt{7^2 - 4 * 6 * (-3)}}{2 * 6}$$

$$\cos x_{1,2} = \frac{-7 \pm \sqrt{49 + 72}}{12}$$

$$\cos x_{1,2} = \frac{-7 \pm 11}{12}$$

$$\cos x_1 = \frac{-7 + 11}{12} = 0{,}3333 \longrightarrow x_1 = 70{,}7° \text{ oder } 289{,}5°$$

$$\cos x_2 = \frac{-7 - 11}{12} = -1{,}5 \quad \text{keine Lösung, } |-1{,}5| > 1$$

Lösungsmenge **L = {70,7°}**