

Wismarkierung

N.

$$\sin^2 x + \cos^2 x = 1 \quad | \cdot 2$$

$$2\sin^2 x + 2\cos^2 x = 2$$

$$2\sin^2 x + 2\cos^2 x + 2\cos^2 x = 2 + 2\cos^2 x$$

$$2\sin^2 x + 4\cos^2 x = 2 + 2\cos^2 x$$

$$\cos^2 x (2\sin^2 x + 2\cos^2 x + 2\cos^2 x) = 2 + 2\cos^2 x$$

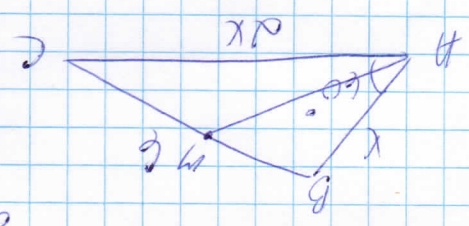
$$\cos^2 x = 0 \quad \text{oder} \quad 2\sin^2 x + 4\cos^2 x = 2 + 2\cos^2 x$$

$$x = \frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$

$$\text{Ans.: } x = \frac{\pi}{2} + k\pi, k \in \mathbb{Z}$$

$$x_0 = -\arccos\left(\frac{1}{3}\right) + k\pi, k \in \mathbb{Z}$$

α



Gegeben: $\angle A = 60^\circ$
 $AC = 2AB$
 $BC = 6$
 Gesucht: HM
 Lösung: HM - Punkt

$$\angle MAC = 30^\circ$$

$$6^2 = x^2 + 4x^2 - 2 \cdot x \cdot 2x \cdot \frac{1}{2} \quad | : 5x^2 = 3x^2$$

$$3x^2 = 36$$

$$x^2 = 12 \quad | \sqrt{\quad} \quad x = 2\sqrt{3}$$

$$MC = 4\sqrt{3}$$

$$(2\sqrt{3})^2 = (4\sqrt{3})^2 + 6^2 - 2 \cdot 4\sqrt{3} \cdot 6 \cdot \cos(\angle ACM)$$

$$\cos(\angle ACM) = \frac{1}{3} \Rightarrow \angle ACM = 30^\circ$$

$$\angle ACM = \angle MC = 30^\circ \Rightarrow HM = MC = 4 \quad \angle AMC = 180 - 60 = 120$$

$$(4\sqrt{3})^2 = y^2 + y^2 - 2 \cdot y \cdot y \cdot \left(-\frac{1}{2}\right)$$

$$y^2 - 16 = y^2 \quad | : y = 4$$

$$\text{Ans.: } HM = 4$$