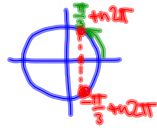


KOSINIYHTÄLÖ



$$2 \cos x - 1 = 0$$

$$2 \cos x = 1$$

$$\cos x = \frac{1}{2}$$

kalman x-kohde on $\frac{1}{2}$

$$x = \pm \frac{\pi}{3} + n2\pi$$

pysähtyy joko $\frac{\pi}{3}$ tai $-\frac{\pi}{3}$ kohdalle

ESIM $\cos(3x + \frac{\pi}{2}) = \frac{\sqrt{3}}{2}$



$$3x + \frac{\pi}{2} = \pm \frac{\pi}{6} + n2\pi$$

$$3x + \frac{3\pi}{6} = \frac{\pi}{6} + n2\pi \text{ tai } 3x + \frac{3\pi}{6} = -\frac{\pi}{6} + n2\pi$$

pysähtyy jupen-kumpaan kolttaan

$$3x = -\frac{2\pi}{6} + n2\pi$$

$$3x = -\frac{4\pi}{6} + n2\pi$$

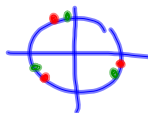
$$3x = -\frac{\pi}{3} + n2\pi$$

$$3x = -\frac{2\pi}{3} + n2\pi$$

||:3

$$x = -\frac{\pi}{9} + n\frac{2\pi}{3}$$

$$x = -\frac{2\pi}{9} + n\frac{2\pi}{3}, n \in \mathbb{Z}$$



ESIM

$$2 \cos^2 x - \cos x - 1 = 0$$

$a=2, b=-1, c=-1$, muuttaja $\cos x$

Jokoa $\cos x = t$

$$2t^2 - t - 1 = 0$$

$$t = \frac{1 \pm \sqrt{1+8}}{4} = \frac{1 \pm 3}{4}$$

$$t = 1 \text{ tai } t = -\frac{1}{2}$$

$$\cos x = 1 \text{ tai } \cos x = -\frac{1}{2}$$



$$\cos x = 1 \text{ tai } \cos x = -\frac{1}{2}$$

$$x = n2\pi \text{ tai } x = \pm \frac{2\pi}{3} + n2\pi$$

TIKOLAITTAIN ETÄ RÄTKÄISUT VOI YHDISTÄÄ!



$$x = n\frac{2\pi}{3}$$

* Trigonometrisia kaavoja saa käyttää!

ESIM 3 s.78

$$\begin{cases} \sin 2x = 2 \sin x \cos x \\ \sin^2 x + \cos^2 x = 1 \end{cases}$$

s.80-81

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- 185
- 186
- 189
- 190

- 194
- 195
- 200