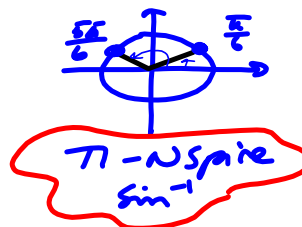


- E1  $\sin x = \frac{1}{2}$  rad  
rad
- E2  $\cos x = \frac{1}{2}$  rad
- E3  $2 \cos x + 1 = 0$  deg
- E4  $\sin x = -0,321$  kymmenesosan arkeen tarkkuudella
- E5  $\sin 2x = \sin x$
- E6 a)  $2 \cos 3x - 1 = 0$   
b) Miten yhtälön juurista ovat välillä  $[0^\circ, 360^\circ]$ ?
- E7  $\sin 4x = \frac{\sqrt{3}}{2}$
- E8 a)  $\sin 3x = \sin x$   
b)  $[-\frac{\pi}{2}, \frac{\pi}{2}]$  täällä välillä?
- E9 175 b)

$$\underline{E1} \quad \sin x = \frac{1}{2}$$

$$x = \frac{\pi}{6} + n2\pi \quad \text{tai} \quad x = \pi - \frac{\pi}{6} + n2\pi, \quad n \in \mathbb{Z}$$

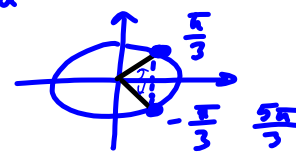
$$x = \frac{\pi}{6} + n2\pi \quad \text{tai} \quad x = \frac{5\pi}{6} + n2\pi, \quad n \in \mathbb{Z}$$



$$\underline{E2} \quad \cos x = \frac{1}{2}$$

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

$$x = \pm \frac{\pi}{3} + n2\pi, \quad n \in \mathbb{Z}$$



$$\underline{E5} \quad \sin \underline{2x} = \sin \underline{x}$$

$$\underline{2x} = \underline{x} + n \cdot 360^\circ \quad \text{tai} \quad 2x = \underline{180^\circ - x} + n \cdot 360^\circ$$

$$2x - x = n \cdot 360^\circ \quad \text{tai} \quad 2x + x = 180^\circ + n \cdot 360^\circ$$

$$x = n \cdot 360^\circ \quad \text{tai} \quad 3x = 180^\circ + n \cdot 360^\circ \quad | :3$$

$$x = \frac{180^\circ}{3} + n \cdot \frac{\cancel{360^\circ}}{3}$$

$$\vee: \quad x = n \cdot 360^\circ \quad \text{tai} \quad x = 60^\circ + n \cdot 120^\circ, \quad n \in \mathbb{Z}$$

$$\text{Eg } \cos 2x - \cos 4x = 0$$

$$\cos 2x = \cos 4x$$

$$2x = 4x + n \cdot 2\pi \quad \text{tai} \quad 2x = -4x + n \cdot 2\pi$$

$$2x - 4x = n \cdot 2\pi \quad \text{tai} \quad 2x + 4x = n \cdot 2\pi$$

$$-2x = n \cdot 2\pi \quad | : (-2) \quad \text{tai} \quad 6x = n \cdot 2\pi$$

$$x = n \cdot \frac{2\pi}{-2} \quad \text{tai} \quad x = n \cdot \frac{2\pi}{6}$$

$$x = n\pi \quad \text{tai} \quad x = n \cdot \frac{\pi}{3}$$

V:

