

ΑΣΚΗΣΕΙΣ

Α' ΟΜΑΔΑΣ

1. Να λύσετε τις εξισώσεις

$$\text{iii) } \sin x = 0$$

$$\sin x = 0 \Leftrightarrow \sin x = \sin \frac{\pi}{2}$$

$$x = 2k\pi \pm \frac{\pi}{2} \quad \text{ή} \quad x = k\pi + \frac{\pi}{2}, k \in \mathbb{Z}$$

2. Να λύσετε τις εξισώσεις

$$\text{iii) } \sin x = -\frac{\sqrt{2}}{2}$$

$$\sin x = -\frac{\sqrt{2}}{2} \Leftrightarrow \sin x = -\sin \frac{\pi}{4}$$

$$\sin x = \sin \left(\pi - \frac{\pi}{4} \right) \Leftrightarrow \sin x = \sin \frac{3\pi}{4}$$

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

3. Να λύσετε τις εξισώσεις

$$\text{i) } \cos x = 0 \Leftrightarrow \cos x = \cos \frac{\pi}{2} \Leftrightarrow x = k\pi, k \in \mathbb{Z}$$

$$\text{ii) } \cos x = \frac{\sqrt{3}}{2} \Leftrightarrow \cos x = \cos \frac{\pi}{6} \Leftrightarrow x = k\pi + \frac{\pi}{6}, k \in \mathbb{Z}$$

$$\text{iv) } \sin x = \frac{\sqrt{2}}{2}$$

$$\sin x = \frac{\sqrt{2}}{2} \Leftrightarrow \sin x = \sin \frac{\pi}{4}$$

$$x = 2k\pi \pm \frac{\pi}{4}, k \in \mathbb{Z}$$

$$\text{iv) } \sin x = -1$$

$$\sin x = -1 \Leftrightarrow \sin x = \sin \pi$$

$$x = 2k\pi + \pi \Leftrightarrow x = (2k+1)\pi, k \in \mathbb{Z}$$

$$\text{iii) } \cos x = 1 \Leftrightarrow \cos x = \cos \frac{\pi}{4} \Leftrightarrow x = k\pi + \frac{\pi}{4}, k \in \mathbb{Z}$$

$$\text{iv) } \cos x = \sqrt{3} \Leftrightarrow \cos x = \cos \frac{\pi}{6} \Leftrightarrow x = k\pi + \frac{\pi}{6}, k \in \mathbb{Z}$$

4. Να λύσετε τις εξισώσεις

$$\text{i)} \quad \varepsilon\phi x = -\frac{\sqrt{3}}{3}$$

$$\varepsilon\phi x = -\varepsilon\phi \frac{\pi}{6}$$

$$\varepsilon\phi x = \varepsilon\phi\left(-\frac{\pi}{6}\right)$$

$$x = k\pi - \frac{\pi}{6}, \quad k \in \mathbb{Z}$$

$$\text{ii)} \quad \sigma\phi x = -\frac{\sqrt{3}}{3}$$

$$\sigma\phi x = -\sigma\phi \frac{\pi}{3}$$

$$\sigma\phi x = \sigma\phi\left(-\frac{\pi}{3}\right)$$

$$x = k\pi - \frac{\pi}{3}, \quad k \in \mathbb{Z}$$

5. Να λύσετε τις εξισώσεις

$$\text{ii)} \quad (2\eta\mu x + \sqrt{2})(1 - \sigma\upsilon\nu x) = 0$$

$$\begin{cases} 2\eta\mu x + \sqrt{2} = 0 \\ 1 - \sigma\omega x = 0 \end{cases}$$

$$\Leftrightarrow \begin{cases} \eta\mu x = -\frac{\sqrt{2}}{2} \\ \sigma\omega x = 1 \end{cases}$$

$$\Leftrightarrow \begin{cases} \eta\mu x = -\eta\mu \frac{\pi}{4} \\ \sigma\omega x = \sigma\omega \frac{\pi}{2} \end{cases} \Rightarrow$$

$$\begin{cases} \eta\mu x = \eta\mu\left(-\frac{\pi}{4}\right) \\ \sigma\omega x = \sigma\omega \frac{\pi}{2} \end{cases}$$

$$\Leftrightarrow \begin{cases} x = 2k\pi - \frac{\pi}{4} \\ x = 2k\pi + \pi + \frac{\pi}{4} \\ x = 2k\pi \pm \frac{\pi}{4} \end{cases}$$

$$\Leftrightarrow \begin{cases} x = 2k\pi - \frac{\pi}{4} \\ x = 2k\pi + \frac{\pi}{4} \\ x = k\pi + \frac{\pi}{2} \end{cases} \quad k \in \mathbb{Z}$$

Για το επόμενο μάθημα: Ασκ. Α' Ομάδας 9, 10, 11 (σελ. 88)