

$$14. f) \quad 2 \cdot n\mu^2 x - 3 \cdot \sigma n(n+x) = 0 \iff$$

$$2 \cdot n\mu^2 x - 3 \cdot (-\sigma n x) = 0 \iff$$

$$2 \cdot n\mu^2 x + 3 \cdot \sigma n x = 0 \iff$$

$$2 \cdot (1 - \sigma n^2 x) + 3 \cdot \sigma n x = 0 \iff$$

$$2 - 2 \cdot \sigma n^2 x + 3 \cdot \sigma n x = 0 \iff$$

$$-2 \cdot \sigma n^2 x + 3 \cdot \sigma n x + 2 = 0,$$

$$\exists \tau \omega \quad \sigma n x = \omega, \quad -1 \leq \omega \leq 1$$

$$\begin{aligned} n\mu^2 x + \sigma n^2 x &= 1 \iff \\ n\mu^2 x &= 1 - \sigma n^2 x \end{aligned}$$

$$-2 \cdot \omega^2 + 3\omega + 2 = 0$$

$$\Delta = b^2 - 4ac = 3^2 - 4(-2) \cdot 2 =$$

$$9 + 16 = 25 > 0$$

$$\omega_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-3 \pm 5}{-4} \begin{matrix} + \rightarrow \frac{2}{-4} = -1/2 \\ - \rightarrow \frac{-8}{-4} = 2 \end{matrix}$$

$$\text{Für } \omega = -1/2 \iff \sigma n x = -\frac{1}{2} \iff$$

$$\sigma n x = -\sigma n \frac{1}{3} \iff \sigma n x = \sigma n \left(1 - \frac{1}{3}\right) \iff$$

$$\sigma n x = \sigma n \frac{2}{3} \iff$$

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

$$15) a) \quad n\mu x = \cos x \quad (\Leftrightarrow) \quad n\mu x = n\mu\left(\frac{\pi}{2} - x\right)$$

$$x = 2kn + \frac{\pi}{2} - x \quad (1) \quad k \in \mathbb{Z}$$

$$x = 2kn + \pi - \left(\frac{\pi}{2} - x\right) \quad (2)$$

$$(1) \Leftrightarrow 2x = 2kn + \frac{\pi}{2} \xrightarrow{:2} \quad \boxed{x = kn + \frac{\pi}{4}, \quad k \in \mathbb{Z}}$$

$$(2) \Leftrightarrow \cancel{x} = 2kn + \pi - \frac{\pi}{2} + \cancel{x} \quad (\Leftrightarrow) \quad 0 = 2kn - \frac{\pi}{2} \quad \text{ASÜvarn}$$

$$n\mu x = n\mu \theta \quad (\Leftrightarrow)$$

$$x = 2kn + \theta$$

$$x = 2kn + \pi - \theta$$

$$15) b) \quad \operatorname{Re} X = -\sqrt{3} \cdot \operatorname{Im} X \quad (\operatorname{Im} X \neq 0) \quad \operatorname{Im} X \neq 0 \Rightarrow X \neq k\pi + \frac{\pi}{2}$$

$$\frac{\operatorname{Re} X}{\operatorname{Im} X} = -\sqrt{3} \Rightarrow \operatorname{Arg} X = -\sqrt{3} \Rightarrow \operatorname{Arg} X = -\varepsilon 4 \frac{\pi}{3} \stackrel{2^\circ}{\Rightarrow}$$

$$\operatorname{Arg} X = \operatorname{Arg}\left(n - \frac{\pi}{3}\right) \Rightarrow \operatorname{Arg} X = \operatorname{Arg} \frac{2\pi}{3} \Rightarrow \boxed{X = k\pi + \frac{2\pi}{3}, k \in \mathbb{Z}}$$

$$17) a) \quad \text{Na} \quad \text{Lsg} \quad \sin(2x - \frac{\pi}{3}) - \cos 2x = 0 \Leftrightarrow$$

$$\sin(2x - \frac{\pi}{3}) = \cos 2x \Leftrightarrow \sin(2x - \frac{\pi}{3}) = \sin(\frac{\pi}{2} - 2x)$$

$$2x - \frac{\pi}{3} = 2k\pi + \frac{\pi}{2} - 2x \quad (1) \quad k \in \mathbb{Z}$$

$$2x - \frac{\pi}{3} = 2k\pi + \pi - (\frac{\pi}{2} - 2x) \quad (2)$$

$$(1) \Leftrightarrow 2x + 2x = 2k\pi + \frac{\pi}{2} + \frac{\pi}{3} \Leftrightarrow$$

$$4x = 2k\pi + \frac{5\pi}{6} \stackrel{4}{\Leftrightarrow}$$

$$x = \frac{k\pi}{2} + \frac{5\pi}{24}, \quad k \in \mathbb{Z}$$

$$(2) \Leftrightarrow \cancel{2x} - \frac{\pi}{3} = 2k\pi + \pi - \frac{\pi}{2} + \cancel{2x} \Leftrightarrow$$

Abstraktion