

2011年全学部第2問


 数理
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2 $0 \leq \theta < \pi$ のとき, 方程式 $2\sin^2\left(\theta - \frac{\pi}{4}\right) + \sqrt{3}\cos\left(\theta - \frac{\pi}{4}\right) - 2 = 0$ を解け.

$$d = \theta - \frac{\pi}{4} \text{ とおくと, } -\frac{\pi}{4} \leq d < \frac{3}{4}\pi \cdots \textcircled{1}$$

このとき, 方程式は,

$$2\sin^2 d + \sqrt{3}\cos d - 2 = 0 \text{ となる.}$$

$$\therefore 2(1 - \cos^2 d) + \sqrt{3}\cos d - 2 = 0$$

$$\therefore \cos d (2\cos d - \sqrt{3}) = 0$$

$$\therefore \cos d = 0, \frac{\sqrt{3}}{2}$$

$$\therefore \textcircled{1} \text{ より, } d = \pm \frac{\pi}{6}, \frac{\pi}{2}$$

$$\therefore \theta = \frac{\pi}{12}, \frac{5}{12}\pi, \frac{3}{4}\pi$$

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