

8 小問集合.  $0 \leq \theta < 2\pi$  とする. 以下の方程式・不等式を解け.

(1)  $\sin \theta = \frac{1}{2}$

(2)  $2 \cos \theta + \sqrt{3} = 0$

(3)  $\tan \theta - 1 < 0$

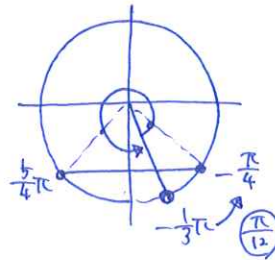
(4)  $2 \sin \left( \theta - \frac{1}{3}\pi \right) + \sqrt{2} = 0$

(5)  $2 \cos \left( \theta + \frac{1}{4}\pi \right) + \sqrt{3} \leq 0$

(6)  $\tan \left( \theta - \frac{1}{6}\pi \right) - \sqrt{3} > 0$

(4)  $2 \sin \left( \theta - \frac{1}{3}\pi \right) = -\sqrt{2}$

$\sin \left( \theta - \frac{1}{3}\pi \right) = -\frac{1}{\sqrt{2}}$



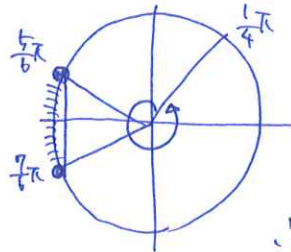
左図より

$\theta - \frac{\pi}{3} = \frac{\pi}{4}, \frac{\pi}{4} + \frac{6}{4}\pi$

$\therefore \theta = \frac{\pi}{12}, \frac{19}{12}\pi$

(5)  $2 \cos \left( \theta + \frac{1}{4}\pi \right) \leq -\sqrt{3}$

$\cos \left( \theta + \frac{1}{4}\pi \right) \leq -\frac{\sqrt{3}}{2}$

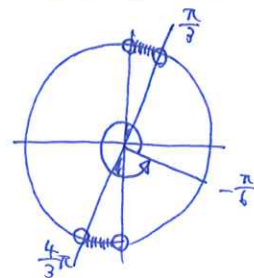


左図より

$\frac{5}{6}\pi - \frac{\pi}{4} \leq \theta \leq \frac{7}{6}\pi - \frac{\pi}{4}$

$\therefore \frac{7}{12}\pi \leq \theta \leq \frac{11}{12}\pi$

(6)  $\tan \left( \theta - \frac{1}{6}\pi \right) > \sqrt{3}$

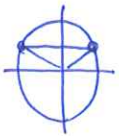


左図より

$\frac{\pi}{2} < \theta < \frac{2}{3}\pi,$

$\frac{3}{2}\pi < \theta < \frac{5}{3}\pi$

(1)

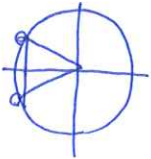


左図より

$\theta = \frac{\pi}{6}, \frac{5}{6}\pi$

(2)  $2 \cos \theta + \sqrt{3} = 0$

$\cos \theta = -\frac{\sqrt{3}}{2}$

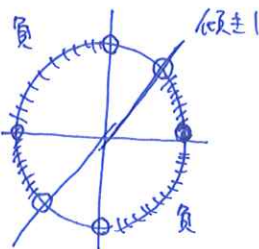


左図より

$\theta = \frac{5}{6}\pi, \frac{7}{6}\pi$

(3)  $\tan \theta < 1$

傾き1未満



上図より

$0 \leq \theta < \frac{\pi}{4}, \frac{\pi}{2} < \theta < \frac{5}{4}\pi,$

$\frac{3}{2}\pi < \theta < 2\pi$

基本中の基本.

(3) 傾き1未満(負)を忘れないように注意