

1  $0 \leq \theta < 2\pi$  のとき、次の不等式を解け。

- (1)  $\sin \theta > \frac{1}{2}$       (2)  $\cos \theta \leq \frac{\sqrt{3}}{2}$       (3)  $\tan \theta < -\sqrt{3}$   
 (4)  $\sqrt{2} \sin \theta \leq -1$       (5)  $2\cos \theta + \sqrt{2} > 0$       (6)  $\tan \theta + 1 \geq 0$   
 (7)  $2\sin \theta < -\sqrt{3}$       (8)  $\sin \theta < \frac{\sqrt{3}}{2}$       (9)  $\cos \theta > \frac{1}{2}$   
 (10)  $\tan \theta < 1$       (11)  $\sqrt{2} \sin \theta + 1 \geq 0$       (12)  $\cos \theta \geq -\frac{1}{2}$   
 (13)  $\tan \theta \leq -\frac{1}{\sqrt{3}}$

- 解答 (1)  $\frac{\pi}{6} < \theta < \frac{5}{6}\pi$       (2)  $\frac{\pi}{6} \leq \theta \leq \frac{11}{6}\pi$       (3)  $\frac{\pi}{2} < \theta < \frac{2}{3}\pi, \frac{3}{2}\pi < \theta < \frac{5}{3}\pi$   
 (4)  $\frac{5}{4}\pi \leq \theta \leq \frac{7}{4}\pi$       (5)  $0 \leq \theta < \frac{3}{4}\pi, \frac{5}{4}\pi < \theta < 2\pi$   
 (6)  $0 \leq \theta < \frac{\pi}{2}, \frac{3}{4}\pi \leq \theta < \frac{3}{2}\pi, \frac{7}{4}\pi \leq \theta < 2\pi$       (7)  $\frac{4}{3}\pi < \theta < \frac{5}{3}\pi$   
 (8)  $0 \leq \theta < \frac{\pi}{3}, \frac{2}{3}\pi < \theta < 2\pi$       (9)  $0 \leq \theta < \frac{\pi}{3}, \frac{5}{3}\pi < \theta < 2\pi$   
 (10)  $0 \leq \theta < \frac{\pi}{4}, \frac{\pi}{2} < \theta < \frac{5}{4}\pi, \frac{3}{2}\pi < \theta < 2\pi$       (11)  $0 \leq \theta \leq \frac{5}{4}\pi, \frac{7}{4}\pi \leq \theta < 2\pi$   
 (12)  $0 \leq \theta \leq \frac{2}{3}\pi, \frac{4}{3}\pi \leq \theta < 2\pi$       (13)  $\frac{\pi}{2} < \theta \leq \frac{5}{6}\pi, \frac{3}{2}\pi < \theta \leq \frac{11}{6}\pi$

2  $0 \leq \theta < 2\pi$  のとき、次の不等式を解け。

- (1)  $\sin\left(\theta + \frac{\pi}{4}\right) \leq \frac{\sqrt{3}}{2}$       (2)  $\tan\left(\theta - \frac{\pi}{6}\right) > 1$   
 (3)  $\cos\left(\theta - \frac{\pi}{3}\right) < -\frac{\sqrt{3}}{2}$       (4)  $\tan\left(\theta + \frac{\pi}{6}\right) \geq -\sqrt{3}$   
 (5)  $\sin\left(\theta + \frac{5}{6}\pi\right) \leq -\frac{1}{\sqrt{2}}$       (6)  $\tan\left(\theta - \frac{\pi}{6}\right) > \frac{1}{\sqrt{3}}$   
 (7)  $\sin\left(\theta + \frac{\pi}{6}\right) < \frac{1}{\sqrt{2}}$       (8)  $\tan\left(\theta - \frac{\pi}{3}\right) > 1$

- 解答 (1)  $0 \leq \theta \leq \frac{\pi}{12}, \frac{5}{12}\pi \leq \theta < 2\pi$       (2)  $\frac{5}{12}\pi < \theta < \frac{2}{3}\pi, \frac{17}{12}\pi < \theta < \frac{5}{3}\pi$   
 (3)  $\frac{7}{6}\pi < \theta < \frac{3}{2}\pi$       (4)  $0 \leq \theta < \frac{\pi}{3}, \frac{\pi}{2} \leq \theta < \frac{4}{3}\pi, \frac{3}{2}\pi \leq \theta < 2\pi$   
 (5)  $\frac{5}{12}\pi \leq \theta \leq \frac{11}{12}\pi$       (6)  $\frac{\pi}{3} < \theta < \frac{2}{3}\pi, \frac{4}{3}\pi < \theta < \frac{5}{3}\pi$   
 (7)  $0 \leq \theta < \frac{\pi}{12}, \frac{7}{12}\pi < \theta < 2\pi$       (8)  $\frac{7}{12}\pi < \theta < \frac{5}{6}\pi, \frac{19}{12}\pi < \theta < \frac{11}{6}\pi$

3  $0 \leq \theta < 2\pi$  のとき、次の不等式を解け。

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

- 解答 (1)  $\frac{7}{24}\pi < \theta < \frac{11}{24}\pi, \frac{31}{24}\pi < \theta < \frac{35}{24}\pi$   
 (2)  $0 \leq \theta < \frac{\pi}{12}, \frac{\pi}{4} \leq \theta < \frac{7}{12}\pi, \frac{3}{4}\pi \leq \theta < \frac{13}{12}\pi, \frac{5}{4}\pi \leq \theta < \frac{19}{12}\pi, \frac{7}{4}\pi \leq \theta < 2\pi$   
 (3)  $\frac{3}{4}\pi < \theta < \frac{11}{12}\pi, \frac{7}{4}\pi < \theta < \frac{23}{12}\pi$   
 (4)  $\frac{\pi}{12} < \theta \leq \frac{\pi}{6}, \frac{7}{12}\pi < \theta \leq \frac{2}{3}\pi, \frac{13}{12}\pi < \theta \leq \frac{7}{6}\pi, \frac{19}{12}\pi < \theta \leq \frac{5}{3}\pi$