

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

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

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

2  $0 \leq x < 2\pi$  のとき、次の不等式を解け。

- (1)  $\cos 2x > \sin x$  (2)  $\sin 2x > \cos x$   
 (3)  $\cos 2x < \sin x$  (4)  $\cos 2x \geq \cos^2 x$  (5)  $\cos x + \sin 2x > 0$

- 解答 (1)  $0 \leq x < \frac{\pi}{6}, \frac{5}{6}\pi < x < \frac{3}{2}\pi, \frac{3}{2}\pi < x < 2\pi$  (2)  $\frac{\pi}{6} < x < \frac{\pi}{2}, \frac{5}{6}\pi < x < \frac{3}{2}\pi$   
 (3)  $\frac{\pi}{6} < x < \frac{5}{6}\pi$  (4)  $x = 0, \pi$  (5)  $0 \leq x < \frac{\pi}{2}, \frac{7}{6}\pi < x < \frac{3}{2}\pi, \frac{11}{6}\pi < x < 2\pi$

3  $0 \leq x < 2\pi$  のとき、次の不等式を解け。

- (1)  $\sin x - \sqrt{3}\cos x > -1$  (2)  $\cos x \geq \sqrt{3}\sin x$   
 (3)  $\cos x \leq \sqrt{3}\sin x$

- 解答 (1)  $\frac{\pi}{6} < x < \frac{3}{2}\pi$  (2)  $0 \leq x \leq \frac{\pi}{6}, \frac{7}{6}\pi \leq x < 2\pi$   
 (3)  $\frac{\pi}{6} \leq x \leq \frac{7}{6}\pi$