

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

- (1) $2\sin^2\theta - 3\cos\theta = 0$ (2) $2\cos^2\theta - 3\sin\theta - 3 = 0$
 (3) $2\sin^2\theta + \cos\theta - 2 = 0$ (4) $(2\sin\theta + \sqrt{3})\sin\theta = 0$
 (5) $(\sin\theta + 1)(2\sin\theta - 1) = 0$ (6) $2\cos^2\theta - 5\cos\theta - 3 = 0$
 (7) $2\sin^2\theta - 3\cos\theta = 0$ (8) $\sqrt{3}\tan^2\theta - 2\tan\theta - \sqrt{3} = 0$

- 【解答】 (1) $\theta = \frac{\pi}{3}, \frac{5}{3}\pi$ (2) $\theta = \frac{7}{6}\pi, \frac{3}{2}\pi, \frac{11}{6}\pi$ (3) $\theta = \frac{\pi}{3}, \frac{\pi}{2}, \frac{3}{2}\pi, \frac{5}{3}\pi$
 (4) $\theta = 0, \pi, \frac{4}{3}\pi, \frac{5}{3}\pi$ (5) $\theta = \frac{\pi}{6}, \frac{5}{6}\pi, \frac{3}{2}\pi$ (6) $\theta = \frac{2}{3}\pi, \frac{4}{3}\pi$
 (7) $\theta = \frac{\pi}{3}, \frac{5}{3}\pi$ (8) $\theta = \frac{\pi}{3}, \frac{5}{6}\pi, \frac{4}{3}\pi, \frac{11}{6}\pi$

2 $0 \leq x < 2\pi$ のとき、次の方程式を解け。

- (1) $\cos 2x = \cos x$ (2) $\sin 2x = \cos x$ (3) $2\cos 2x + 4\cos x - 1 = 0$
 (4) $\sin x(1 + \cos 2x) + \sin 2x(1 + \cos x) = 0$ (5) $\cos 2x = \sin x$
 (6) $\cos 2x = \cos x$ (7) $\sin 2x = \cos x$ (8) $\sin 2x = \sqrt{2}\sin x$
 (9) $\cos 2x = 3\cos x - 2$

- 【解答】 (1) $x = 0, \frac{2}{3}\pi, \frac{4}{3}\pi$ (2) $x = \frac{\pi}{6}, \frac{\pi}{2}, \frac{5}{6}\pi, \frac{3}{2}\pi$ (3) $x = \frac{\pi}{3}, \frac{5}{3}\pi$
 (4) $x = 0, \frac{\pi}{2}, \frac{2}{3}\pi, \pi, \frac{4}{3}\pi, \frac{3}{2}\pi$ (5) $x = \frac{\pi}{6}, \frac{5}{6}\pi, \frac{3}{2}\pi$
 (6) $x = 0, \frac{2}{3}\pi, \frac{4}{3}\pi$ (7) $x = \frac{\pi}{6}, \frac{\pi}{2}, \frac{5}{6}\pi, \frac{3}{2}\pi$ (8) $x = 0, \frac{\pi}{4}, \pi, \frac{7}{4}\pi$
 (9) $x = 0, \frac{\pi}{3}, \frac{5}{3}\pi$

3 $0 \leq x < 2\pi$ のとき、次の方程式を解け。

- (1) $\sin x + \sqrt{3}\cos x = -1$ (2) $2(\sin x - \cos x) = \sqrt{6}$
 (3) $\sqrt{3}\sin 2x - \cos 2x = -\sqrt{2}$ (4) $\sin x - \cos x = 1$
 (5) $2(\sin x + \cos x) = \sqrt{6}$ (6) $\sin x + \cos x = \frac{1}{\sqrt{2}}$

- 【解答】 (1) $x = \frac{5}{6}\pi, \frac{3}{2}\pi$ (2) $x = \frac{7}{12}\pi, \frac{11}{12}\pi$ (3) $x = \frac{17}{24}\pi, \frac{23}{24}\pi, \frac{41}{24}\pi, \frac{47}{24}\pi$
 (4) $x = \frac{\pi}{2}, \pi$ (5) $x = \frac{\pi}{12}, \frac{5}{12}\pi$ (6) $x = \frac{7}{12}\pi, \frac{23}{12}\pi$