①

Solve each of the following trigonometric equations.

a) $\sin(\theta - 45°) = \sin\theta$, $\quad 0 \le \theta < 360°$

b) $\cos(x - 30°) = \sin(x + 30°)$, $\quad 0 \le x < 360°$

c) $\cos(y - 30°) = \sin(y + 45°)$, $\quad 0 \le y < 360°$

d) $\sin(\varphi - 30°) = \cos(\varphi - 45°)$, $\quad 0 \le \varphi < 360°$

e) $\cos(\alpha - 60°) = \cos(\alpha + 60°)$, $\quad 0 \le \alpha < 360°$

②

Solve each of the following trigonometric equations.

a) $\sin\left(\theta + \dfrac{\pi}{4}\right) = \sin\theta$, $\quad 0 \le \theta < 2\pi$

b) $\cos\left(x + \dfrac{\pi}{6}\right) = \cos\left(x + \dfrac{2\pi}{3}\right)$, $\quad 0 \le \theta < 2\pi$

c) $\sin\left(\dfrac{\pi}{3} - y\right) = \cos\left(y + \dfrac{5\pi}{6}\right)$, $\quad 0 \le y < 2\pi$ (very hard)

d) $2\cos\left(\varphi + \dfrac{\pi}{2}\right) + \sin\left(\varphi + \dfrac{\pi}{3}\right) = 0$, $\quad 0 \le \varphi < 2\pi$

e) $\sqrt{2}\cos\left(\alpha + \dfrac{\pi}{4}\right) = \sin\left(\alpha + \dfrac{\pi}{6}\right)$, $\quad 0 \le \alpha < 2\pi$

③

Solve each of the following trigonometric equations.

a) $\sin(\theta - 20°) = \sin(\theta + 60°)$, $\quad 0 \le \theta < 360°$

b) $\cos(x - 35°) = \cos(x - 55°)$, $\quad 0 \le x < 360°$

c) $\sin(y - 48°) = \cos(y + 12°)$, $\quad 0 \le y < 360°$

d) $\sin(\varphi + 72°) = \cos(\varphi - 38°)$, $\quad 0 \le \varphi < 360°$

e) $\cos(\alpha - 36°) = \cos(\alpha - 72°)$, $\quad 0 \le \alpha < 360°$