

練習問題 1

問題 1. 次の角を弧度 (ラジアン) で表せ。

$$10^\circ = \frac{\pi}{18}, \quad 20^\circ = \frac{\pi}{9}, \quad 30^\circ = \frac{\pi}{6}, \quad 40^\circ = \frac{2\pi}{9},$$

$$45^\circ = \frac{\pi}{4}, \quad 50^\circ = \frac{5\pi}{18}, \quad 60^\circ = \frac{\pi}{3}, \quad 75^\circ = \frac{5\pi}{12},$$

$$90^\circ = \frac{\pi}{2}, \quad 100^\circ = \frac{5\pi}{9}, \quad 135^\circ = \frac{3\pi}{4}, \quad 180^\circ = \pi,$$

$$210^\circ = \frac{7\pi}{6}, \quad 240^\circ = \frac{4\pi}{3}, \quad 270^\circ = \frac{3\pi}{2}, \quad 360^\circ = 2\pi,$$

問題 2. 弧度法で表された次の角を度数法 ($^\circ$) を用いて表せ。

$$\begin{aligned} \frac{\pi}{10} &= 18^\circ, & \frac{\pi}{5} &= 36^\circ, & \frac{\pi}{4} &= 45^\circ, & \frac{\pi}{3} &= 60^\circ, \\ \frac{\pi}{2} &= 90^\circ, & \frac{2\pi}{3} &= 120^\circ, & \frac{3\pi}{4} &= 135^\circ, & \frac{\pi}{8} &= 22.5^\circ \end{aligned}$$

問題 3. 次の値を求めよ。

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| (1) $\cos 30^\circ = \frac{\sqrt{3}}{2},$ | (2) $\sin 30^\circ = \frac{1}{2}$ | (3) $\cos 60^\circ = \frac{1}{2},$ | (4) $\sin 60^\circ = \frac{\sqrt{3}}{2}$ |
| (5) $\cos 90^\circ = 0,$ | (6) $\sin 90^\circ = 1$ | (7) $\cos 120^\circ = -\frac{1}{2},$ | (8) $\sin 120^\circ = \frac{\sqrt{3}}{2}$ |
| (9) $\cos 150^\circ = -\frac{\sqrt{3}}{2},$ | (10) $\sin 150^\circ = \frac{1}{2}$ | (11) $\cos 180^\circ = -1,$ | (12) $\sin 180^\circ = 0$ |
| (13) $\cos 240^\circ = -\frac{1}{2},$ | (14) $\sin 240^\circ = -\frac{\sqrt{3}}{2}$ | (15) $\cos 300^\circ = \frac{1}{2},$ | (16) $\sin 300^\circ = -\frac{\sqrt{3}}{2}$ |
| (17) $\cos \frac{\pi}{4} = \frac{1}{\sqrt{2}},$ | (18) $\sin \frac{\pi}{4} = \frac{1}{\sqrt{2}}$ | (19) $\cos \frac{3\pi}{4} = -\frac{1}{\sqrt{2}},$ | (20) $\sin \frac{3\pi}{4} = \frac{1}{\sqrt{2}}$ |
| (21) $\cos \frac{5\pi}{4} = -\frac{1}{\sqrt{2}},$ | (22) $\sin \frac{5\pi}{4} = -\frac{1}{\sqrt{2}}$ | (23) $\cos \frac{7\pi}{4} = \frac{1}{\sqrt{2}},$ | (24) $\sin \frac{7\pi}{4} = -\frac{1}{\sqrt{2}}$ |
| (25) $\cos \frac{7\pi}{6} = -\frac{\sqrt{3}}{2},$ | (26) $\sin \frac{7\pi}{6} = -\frac{1}{2}$ | (27) $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2},$ | (28) $\sin \frac{11\pi}{6} = -\frac{1}{2}$ |