SIMPLE TRIGONOMETRIC EQUATIONS

1 Solve for values of θ and x between 0 and 2π inclusive:

(a) $\sin\theta = \frac{\sqrt{3}}{2}$ **(b)** $\tan x = -1$ **(c)** $\cos x = -0.5$ **(d)** $\sqrt{3}\tan\theta = 1$

SIMPLE TRIGONOMETRIC EQUATIONS

1 Solve for values of θ and x between 0 and 2π inclusive:

(e) $\sin 2\theta = -\frac{1}{2}$ **(f)** $\operatorname{cosec}\theta = -2$ **(g)** $\cot 2x = \sqrt{3}$ **(h)** $\sec 2\theta = \sqrt{2}$

3 The solution to $\sqrt{2}\sin 2\theta + 1 = 0$ for $0 \le \theta \le 2\pi$ is:

A $\frac{5\pi}{4}, \frac{7\pi}{4}$ **B** $\frac{5\pi}{8}, \frac{7\pi}{8}$ **C** $\frac{5\pi}{8}, \frac{7\pi}{8}, \frac{13\pi}{8}, \frac{15\pi}{8}$ **D** $\frac{5\pi}{4}, \frac{7\pi}{4}, \frac{13\pi}{4}, \frac{15\pi}{4}$

4 Solve for $-\pi \le x \le \pi$: **(a)** $2\cos 2x + 1 = 0$

5 Solve between 0 and 2π inclusive:

(a) $\sin\left(\theta+\frac{\pi}{4}\right)=\frac{1}{\sqrt{2}}$ **(b)** $\tan\left(\theta-\frac{\pi}{3}\right)=-\sqrt{3}$ **(c)** $\cos\left(2x+\frac{\pi}{3}\right)=\frac{1}{2}$

5 Solve between 0 and 2π inclusive:

(e) $\tan\left(2\theta-\frac{\pi}{4}\right)+1=0$ **(f)** $2\cos\left(2x-\frac{\pi}{3}\right)=\sqrt{3}$

7 If $0 \leq x \leq 2\pi$, the solution to $\sin x \leq \frac{\sqrt{3}}{2}$ is:

A $x \leq \frac{\pi}{3}$ **B** $x \leq \frac{\pi}{3}$ or $x \geq \frac{2\pi}{3}$ **C** $0 \leq x \leq \frac{\pi}{3}$ or $x \geq \frac{2\pi}{3}$ **D** $0 \leq x \leq \frac{\pi}{3}$ or $\frac{2\pi}{3} \leq x \leq 2\pi$

8 If $0 \leq x \leq 2\pi$, solve: **(a)** $\sin x \geq \frac{1}{2}$ **(b)** $\cos x < \frac{1}{2}$