1. $\tan\theta = -\sqrt{3}$ $\quad [\frac{\pi}{2}, \frac{5\pi}{2}]$

$\boxed{\frac{2\pi}{3}, \frac{5\pi}{3}}$

2. $2\sin(\theta+47°) = 1$ $\quad [0°, 270°]$

$\sin(\theta+47°) = \frac{1}{2}$

$\theta + 47° = \sin^{-1}\frac{1}{2}$

$\theta + 47° = 30°, 150°, 390°$

$-47° \quad -47° \quad -47°$

~~$-17°$~~ $\quad \boxed{103°} \quad$ ~~$343°$~~

3. $4\cos^2\theta = 1$

$\sqrt{\cos^2\theta} = \sqrt{\frac{1}{4}}$ $\quad [\frac{-\pi}{2}, \frac{\pi}{2}]$

$\cos\theta = \pm\frac{1}{2}$

$\boxed{\frac{\pi}{3}, \frac{-\pi}{3}}$

4. $2\sin\theta\cos\theta = \sqrt{2}\cos\theta$ $\quad [-\pi, 2\pi]$

$2\sin\theta\cos\theta - \sqrt{2}\cos\theta = 0$

$\cos\theta(2\sin\theta - \sqrt{2}) = 0$

$\cos\theta = 0 \quad 2\sin\theta - \sqrt{2} = 0$

$\boxed{\frac{-\pi}{2}, \frac{\pi}{2}, \frac{3\pi}{2}}$ $\quad \sin\theta = \frac{\sqrt{2}}{2}$

$\boxed{\frac{\pi}{4}, \frac{3\pi}{4}}$