

$$2\sin x(\sin^2 x - 1) + \cos^2 x = 0, \quad -2\sin x \cos^2 x + \cos^2 x = 0$$

$$\cos^2 x(1 - 2\sin x) = 0 \Rightarrow \begin{cases} \cos^2 x = 0 \\ 1 - 2\sin x = 0 \end{cases}$$

$$1) \cos^2 x = 0, \quad x = \frac{\pi}{2} + \pi n, \quad n \in \mathbb{Z}$$

$$2) 1 - 2\sin x = 0, \quad \sin x = \frac{1}{2}, \quad x = (-1)^n \frac{\pi}{6} + \pi n, \quad n \in \mathbb{Z}$$