

$$\sin^2 x - 3\cos^2 x + 4\sin x \cos x - \cos^2 x - \sin^2 x = 0$$

$$-4\cos^2 x + 4\sin x \cos x = 0 | :(-4), \cos^2 x - \sin x \cos x = 0,$$

$$\cos x(\cos x - \sin x) = 0$$

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

$$2) \cos x - \sin x = 0 | : \cos x \neq 0, \quad 1 - \operatorname{tg} x = 0, \quad \operatorname{tg} x = 1, \quad x = \frac{\pi}{4} + \pi k, \quad k \in \mathbb{Z}$$