

$$(\sin x + \cos x) / \cos x + 3 \sin 2x = \cos^2 2x + \operatorname{tg} x$$

$$\sin x / \cos x + 1 + 3 \sin 2x = \cos^2 2x + \operatorname{tg} x$$

$$\cos x \neq 0$$

$$1 + 3 \sin 2x - \cos^2 2x = 0$$

$$\sin^2 2x + 3 \sin 2x = 0$$

$$\sin 2x = t$$

$$t^2 + 3t = 0$$

$$t(t+3) = 0$$

$$t = -3$$

$$t = 0$$

$$\sin 2x = -3$$

Нет решений

$$\sin 2x = 0$$

$$2x = \pi k$$

$$x = \pi k / 2$$