

$$\begin{aligned} \operatorname{tg}^2 x - 3\operatorname{tg} x + 2\sin x / \cos^3 x &= 3 / \cos^2 x - 1 / \cos^4 x \\ \operatorname{tg}^2 x + 2\operatorname{tg} x * 1 / \cos^2 x + 1 / \cos^4 x &= 3 / \cos^2 x + 3\operatorname{tg} x \\ (\operatorname{tg} x + 1 / \cos^2 x)^2 &= 3(1 / \cos^2 x + \operatorname{tg} x) \end{aligned}$$

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

$$t^2 = 3t$$

$$t = 0$$

$$t = 3$$

$$1 / \cos^2 x + \operatorname{tg} x = 0$$

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

$$1 + y^2 + y = 0$$

$$D < 0$$

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

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

$$1 + y^2 + y = 3$$

$$y^2 + y - 2 = 0$$

$$\begin{matrix} -2 & 1 \end{matrix}$$

$$\operatorname{tg} x = -2$$

$$x = \operatorname{arctg}(-2) + \pi k$$

$$\operatorname{tg} x = 1$$

$$x = \pi/4 + \pi k$$

$$\text{Ответ } \{\operatorname{arctg}(-2) + \pi k\} \cup \{\pi/4 + \pi k\}$$

