

$$\text{tg}^2 x - 3\text{tg} x + 2\sin x / \cos^3 x = 3 / \cos^2 x - 1 / \cos^4 x$$

$$\text{tg}^2 x + 2\sin x / \cos^3 x + 1 / \cos^4 x = 3 / \cos^2 x + 3\text{tg} x$$

$$\text{tg}^2 x + 2\text{tg} x \cdot 1 / \cos^2 x + (1 / \cos^2 x)^2 = 3 / \cos^2 x + 3\text{tg} x$$

$$(\text{tg} x + 1 / \cos^2 x)^2 = 3 / \cos^2 x + 3\text{tg} x$$

$$(\text{tg} x + 1 / \cos^2 x)^2 = 3(1 / \cos^2 x + \text{tg} x)$$

$$(\text{tg} x + 1 / \cos^2 x) = t$$

$$t^2 - 3t = 0$$

$$t(t - 3) = 0$$

$$t = 3$$

$$t = 0$$

$$(\text{tg} x + 1 / \cos^2 x) = 0$$

$$\text{tg} x + \text{tg}^2 x + 1 = 0$$

$$D = 1 - 4 = -3$$

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

$$\text{tg} x + \text{tg}^2 x - 2 = 0$$

$$D = 1 + 8 = 9$$

$$\text{tg} x_1 = 1 + 3/2 = 2$$

$$\text{tg} x_2 = 1 - 3/2 = -1$$

$$x_1 = \text{arctg}(2) + pk$$

$$x_2 = 7\pi/4 + pk$$

