

$$2\cos x - \sin 2x = 2 + 2\sin x$$

$$2\cos x - 2\sin x \cdot \cos x = 2 + 2\sin x$$

$$\cos x - \sin x \cdot \cos x = 1 + \sin x$$

$$-\sin x \cdot \cos x = 1 + \sin x - \cos x$$

$$\sin x + \cos x = t$$

$$\sin^2 x + 2\sin x \cos x + \cos^2 x = t^2$$

$$1 + 2\sin x \cos x = t^2$$

$$\sin x \cdot \cos x = (t^2 - 1)/2$$

$$\sin x - \cos x = t$$

$$\sin^2 x - 2\sin x \cos x + \cos^2 x = t^2$$

$$1 - 2\sin x \cos x = t^2$$

$$\sin x \cdot \cos x = (1 - t^2)/2$$

$$-t - (1 - t^2)/2 = 1$$

$$-2t - 1 + t^2 = 2$$

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

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

$$t_1 = 3$$

$$t_2 = -1$$

$$\sin x - \cos x = 3$$

$$\sqrt{2}(\sin x \cdot \cos a - \cos x \cdot \sin a) = 3$$

$$\cos a = 1/\sqrt{2}$$

$$\sin a = 1/\sqrt{2}$$

$$a = \pi/4$$

$$\sqrt{2}(\sin x \cdot \cos(\pi/4) - \cos x \cdot \sin(\pi/4)) = 3$$

$$\sqrt{2}\sin(x - \pi/4) = 3$$

$$\sin(x - \pi/4) = 3/\sqrt{2} \text{ - нет решений}$$

$$\sin(x - \pi/4) = -1/\sqrt{2}$$

$$x - \pi/4 = 5\pi/4 + 2\pi k$$

$$x - \pi/4 = 7\pi/4 + 2\pi k$$

$$x = 6\pi/4 + 2\pi k$$

$$x = 8\pi/4 + 2\pi k$$

$$\text{Ответ: } 2\pi + 2\pi k; 3\pi/2 + 2\pi k$$