

a) Решите уравнение $\frac{2\sin^2 x + 2\sin x \cos 2x - 1}{\sqrt{\cos x}} = 0$.

б) найдите все его корни, принадлежащие отрезку $\left[-\frac{9\pi}{4}; \frac{17\pi}{6}\right]$.

$$(2\sin^2 x + 2\sin x \cos 2x - 1) / (\sqrt{\cos x}) = 0$$

$$(2\sin^2 x + 2\sin x (1 - 2\sin^2 x) - 1) / (\sqrt{\cos x}) = 0$$

$$(2\sin^2 x + 2\sin x - 4\sin x \sin^2 x - 1) / (\sqrt{\cos x}) = 0$$

$$(2\sin^2 x + 2\sin x - 4\sin^3 x - 1) / (\sqrt{\cos x}) = 0$$

$$\sqrt{\cos x} \neq 0 \quad \cos x > 0$$

$$\sin x = y$$

$$2y^2 + 2y - 4y^3 - 1 = 0$$

$$y = \frac{1}{2}$$

$$-4y^2 + 2 = 0$$

$$y^2 = \frac{1}{2}$$

$$y = \pm \frac{1}{\sqrt{2}}$$

$$\sin x = \frac{1}{2}$$

$$x = \frac{\pi}{6} + 2\pi k$$

$$x = \frac{5\pi}{6} + 2\pi k$$

$$\sin x = \frac{1}{\sqrt{2}}$$

$$x = \frac{\pi}{4} + 2\pi k$$

$$x = \frac{3\pi}{4} + 2\pi k$$

$$\sin x = -\frac{1}{\sqrt{2}}$$

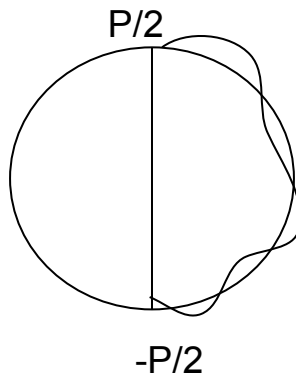
$$x = -\frac{\pi}{4} + 2\pi k$$

$$x = -\frac{3\pi}{4} + 2\pi k$$

$$\cos x > 0$$

$$-\frac{\pi}{2} + 2\pi k < x < \frac{\pi}{2} + 2\pi k$$

$$+ 2\pi k$$



$$-9\pi/4 \leq \pi/6 + 2\pi k \leq 17\pi/6$$

$$-54\pi/4 \leq \pi + 12\pi k \leq 17\pi$$

$$-54/4 \leq 1 + 12k \leq 17$$

$$-54/4 - 1 \leq 12k \leq 17 - 1$$

$$-29/2 \leq 12k \leq 16$$

$$-29/24 \leq k \leq 16/12$$

$$k = -1; 0; 1$$

$$-9\pi/4 \leq \pi/4 + 2\pi k \leq 17\pi/6$$

$$-9 \leq 1 + 2k \leq 17 \cdot 4/6$$

$$-10 \leq 2k \leq 62/6$$

$$-5/4 \leq k \leq 31/24$$

$$k = -1; 0; 1$$

$$-9\pi/4 \leq -\pi/4 + 2\pi k \leq 17\pi/6$$

$$-1 \leq k \leq 37/24$$

$$k = -1; 0; 1$$

$$x = \pi/6 + 2\pi = 13\pi/6$$

$$x = \pi/6 - 2\pi = -11\pi/6$$

$$x = \pi/6$$

$$x = \pi/4 + 2\pi k = 9\pi/4$$

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

$$x = \pi/4$$

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

$$x = -\pi/4 - 2\pi k = -9\pi/4$$

$$x = -\pi/4$$