

$$\cos x \cdot \sin(x/4) + 9/10 \cdot \sin x + 2\sin(x/4) \cdot \cos(x/2) + \sin(x/4) - 1/2 \cdot \cos(x/4) - 9/20 = 0$$

x лежит в $[-9\pi/2; -3\pi/2]$

$$20\cos x \cdot \sin(x/4) + 18\sin x + 40\sin(x/4) \cdot \cos(x/2) + 20\sin(x/4) - 10\cos(x/4) - 9 = 0$$

$$20\sin(x/4)(\cos x + 2\cos(x/2) + 1) + 18\sin x - 10\cos(x/4) - 9 = 0$$

$$20\sin(x/4)(2\cos^2(x/2) + 2\cos(x/2)) + 9(2\sin x - 1) - 10\cos(x/4) = 0$$

$$40\sin(x/4) \cdot \cos(x/2)(2\cos^2(x/4)) + 9(2\sin x - 1) - 10\cos(x/4) = 0$$

$$80\sin(x/4) \cdot \cos(x/2)(\cos^2(x/4)) + 9(2\sin x - 1) - 10\cos(x/4) = 0$$

$$\cos(x/4) [80\sin(x/4) \cdot \cos(x/2) \cdot \cos(x/4) - 10] + 9(2\sin x - 1) = 0$$

$$\cos(x/4) [40\sin(x/2) \cdot \cos(x/2) - 10] + 9(2\sin x - 1) = 0$$

$$\cos(x/4) [20\sin(x) - 10] + 9(2\sin x - 1) = 0$$

$$(10\cos(x/4) + 9)[2\sin(x) - 1] = 0$$

$$2\sin(x) - 1 = 0$$

$$2\sin x = 1$$

$$\sin x = 1/2$$

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

$$x = 5\pi/6 + 2\pi k$$

$$(10\cos(x/4) + 9) = 0$$

$$10\cos(x/4) = -9$$

$$\cos(x/4) = -9/10$$

$$x/4 = \pm \arccos(-9/10) + 2\pi k$$

$$x = \pm 4\arccos(-9/10) + 8\pi k$$

$$-9\pi/2 \leq 4\arccos(-9/10) + 8\pi k \leq -3\pi/2$$

$$-9/2 \leq 4\arccos(-9/10)/\pi + 8k \leq -3/2$$

$$-9/2 - 4\arccos(-9/10)/\pi \leq 8k \leq -3/2 - 4\arccos(-9/10)/\pi$$

$$-9/16 - 4\arccos(-9/10)/8\pi \leq k \leq -3/16 - 4\arccos(-9/10)/8\pi$$

$$-9/16 - \arccos(-9/10)/2\pi \leq k \leq -3/16 - \arccos(-9/10)/2\pi$$

$$-9/16 - 5/12 \leq k \leq -3/16 - 1/2$$

$$-27/48 - 20/48 \leq k \leq -11/16$$

$$-47/48 \leq k \leq -11/16$$

$k = \text{нет}$

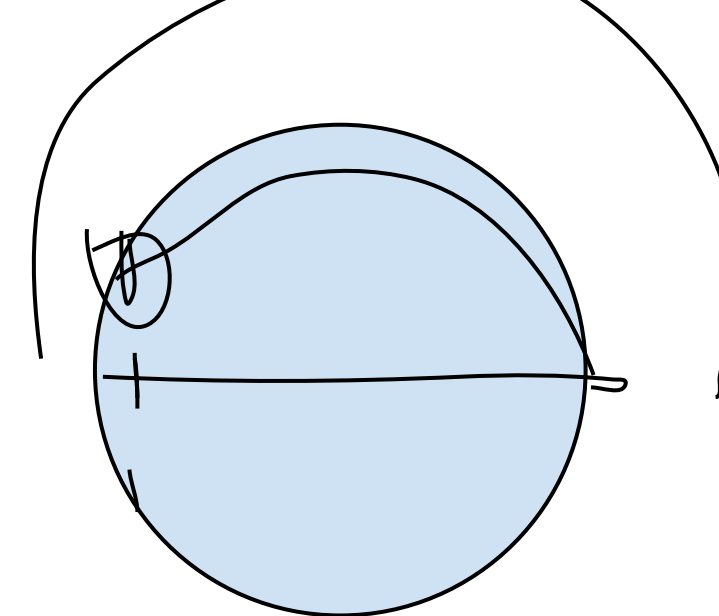
$$-9/16 + \arccos(-9/10)/2\pi \leq k \leq -3/16 + \arccos(-9/10)/2\pi$$

$$-1/16 \leq k \leq 5/16$$

$$k = 0$$

$$x_4 = 4\arccos(-9/10)$$

Ответ: $-23\pi/6; -11\pi/6; -19\pi/6; 4\arccos(-9/10)$



$$-9\pi/2 \leq \pi/6 + 2\pi k \leq -3\pi/2$$

$$-9/2 \leq 1/6 + 2k \leq -3/2$$

$$-27 \leq 1 + 12k \leq -9$$

$$-28 \leq 12k \leq -10$$

$$-28/12 \leq k \leq -10/12$$

$$k = -2; -1$$

$$x_1 = -23\pi/6$$

$$x_2 = -11\pi/6$$

$$-9/2 \leq 5/6 + 2\pi k \leq -3/2$$

$$-27 \leq 5 + 12k \leq -9$$

$$-32 \leq 12k \leq -14$$

$$-32/12 \leq k \leq -14/12$$

$$k = -2$$

$$x_3 = -19\pi/6$$