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

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

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

$-2t + 1 = -(2t - 1)$

$-2t + 1 = -1 \cdot 2t + -1 \cdot -1 = -1(2t + -1) = -(2t - 1)$

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

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

$2\sin^2 x + 2\sin x - 4\sin^3 x - 1 = 0$

$\sqrt{\cos x} \ne 0 \Rightarrow \cos x > 0 \Rightarrow \ldots$

$\sin x = t$

$(2t^2 + 2t - 4t^3 - 1) = 0$

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

$2t^2(2t - 1) - 2t + 1 = 0$

$2t^2(2t - 1) - (2t - 1) = 0$

$(2t-1)(2t^2 - 1) = 0$

$2t-1 = 0$	$2t^2 - 1 = 0$
$t = ½$	$t^2 = ½$
	$t = \pm\sqrt{1/2}$

ОТВ:

а) **$x = \pi/6 + 2\pi k$**

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

$x = -\pi/4 + 2pk$

б)

$x1 = -11\pi/6$

$x2 = \pi/6$

$x3 = 13\pi/6$

$x1 = -7\pi/4$

$x2 = \pi/4$

$x3 = 9\pi/4$

$x1 = -9\pi/4$

$x2 = -\pi/4$

$x3 = 7\pi/4$

$\sin x = ½$

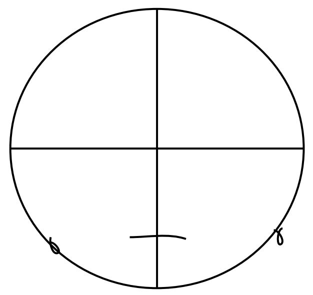
$\sin x = \pm\sqrt{½}$

$V(½) = 1/V2 = 1 \cdot V2 / V2 \cdot V2 = V2 / 2$

$x = \pi/6 + 2\pi k$ ~~x=5π/6 + 2πk~~

$x = \pi/4 + 2\pi k$ ~~x = 3π/4 + 2πk~~

$x = -\pi/4 + 2pk$ ~~x = -π + π/4 + 2πk = -3π/4 + 2πk~~



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

$-29/24 \le k \le 4/3$

$k = -1, 0, 1$

$x1 = -11\pi/6$

$x2 = \pi/6$

$x3 = 13\pi/6$

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

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

$k = -1, 0, 1$

$x1 = -7\pi/4$

$x2 = \pi/4$

$x3 = 9\pi/4$

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

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

$k = -1, 0, 1$

$x1 = -9\pi/4$

$x2 = -\pi/4$

$x3 = 7\pi/4$