

$$\cos 2x = \cos^2(x) - \sin^2(x)$$

$$V(\sin x + \cos x) = \cos 2x$$

$$\begin{aligned} \sin x + \cos x &= \cos^2(2x) & \cos 2x >= 0 \\ \sin x + \cos x &= (\cos^2 2x - \sin^2 2x)^{1/2} \\ \sin x + \cos x &= (\cos x - \sin x)^2 (\cos x + \sin x)^2 \\ \sin x + \cos x - (\cos x - \sin x)^2 (\cos x + \sin x)^2 &= 0 \\ (\sin x + \cos x)(1 - (\cos x - \sin x)^2 (\cos x + \sin x)) &= 0 \\ \sin x + \cos x &= 0 \\ V2[\sin x \cdot 1/\sqrt{2} + \cos x \cdot 1/\sqrt{2}] &= V2[\sin x \cdot \cos P/4 + \cos x \cdot \sin P/4] = \\ &= V2 \sin(x + P/4) \\ \cos t &= 1/\sqrt{2} \\ \sin t &= 1/\sqrt{2} \\ t &= P/4 \\ \sin(x + P/4) &= 0 \\ x + P/4 &= Pk \\ x &= Pk - P/4 \end{aligned}$$

$$\begin{aligned} 1 - (\cos x - \sin x)^2 (\cos x + \sin x) &= 0 \\ 1 - (\cos^2 x - 2\cos x \sin x + \sin^2 x)(\cos x + \sin x) &= 0 \\ 1 - (1 - 2\cos x \sin x)(\cos x + \sin x) &= 0 \\ \text{Пусть } \sin x + \cos x = t & \\ (\sin x + \cos x)^2 = t^2 & \\ \sin^2 x + 2\sin x \cos x + \cos^2 x = t^2 & \\ 1 + 2\sin x \cos x = t^2 & \\ 2\sin x \cos x = t^2 - 1 & \end{aligned}$$

$$\begin{aligned} 1 - (1 - 2\cos x \sin x)(\cos x + \sin x) &= 0 \\ 1 - (1 - (t^2 - 1))t &= 0 \\ 1 - (2 - t^2)t &= 0 \\ 1 - 2t + t^3 &= 0 \\ t^3 - 2t + 1 &= 0 \\ t &= 1 \\ t^2 + t - 1 &= 0 \\ D &= 1 + 4 = 5 \\ t_1 &= (-1 + \sqrt{5})/2 \\ t_2 &= (-1 - \sqrt{5})/2 \\ \sin x + \cos x &= (-1 + \sqrt{5})/2 \\ V2 \cdot \sin(x + P/4) &= (-1 + \sqrt{5})/2 \\ \sin(x + P/4) &= (-1 + \sqrt{5})/(2\sqrt{2}) \\ x + P/4 &= \arcsin((-1 + \sqrt{5})/(2\sqrt{2})) + 2Pk \\ x &= \arcsin((-1 + \sqrt{5})/(2\sqrt{2})) - P/4 + 2Pk \end{aligned}$$

$$\begin{aligned} x + P/4 &= P - \arcsin((-1 + \sqrt{5})/(2\sqrt{2})) + 2Pk \\ x &= 3P/4 - \arcsin((-1 + \sqrt{5})/(2\sqrt{2})) + 2Pk \\ \sin x + \cos x &= (-1 - \sqrt{5})/2 \\ V2 \cdot \sin(x + P/4) &= (-1 - \sqrt{5})/2 \\ \sin(x + P/4) &= (-1 - \sqrt{5})/(2\sqrt{2}) \\ \text{Корней нет} & \end{aligned}$$

$$\begin{aligned} \sin x + \cos x &= 1 \\ V2 \cdot \sin(x + P/4) &= 1 \\ \sin(x + P/4) &= 1/\sqrt{2} \\ x + P/4 &= P/4 + 2Pk \\ x &= 2Pk \end{aligned}$$

$$\begin{aligned} x + P/4 &= P - P/4 + 2Pk \\ x &= P/2 + 2Pk \end{aligned}$$

Ответ до проверки: $\arcsin((-1 + \sqrt{5})/(2\sqrt{2})) - P/4 + 2Pk$

$$3P/4 - \arcsin((-1 + \sqrt{5})/(2\sqrt{2})) + 2Pk$$

$$Pk - P/4$$

$$2Pk$$

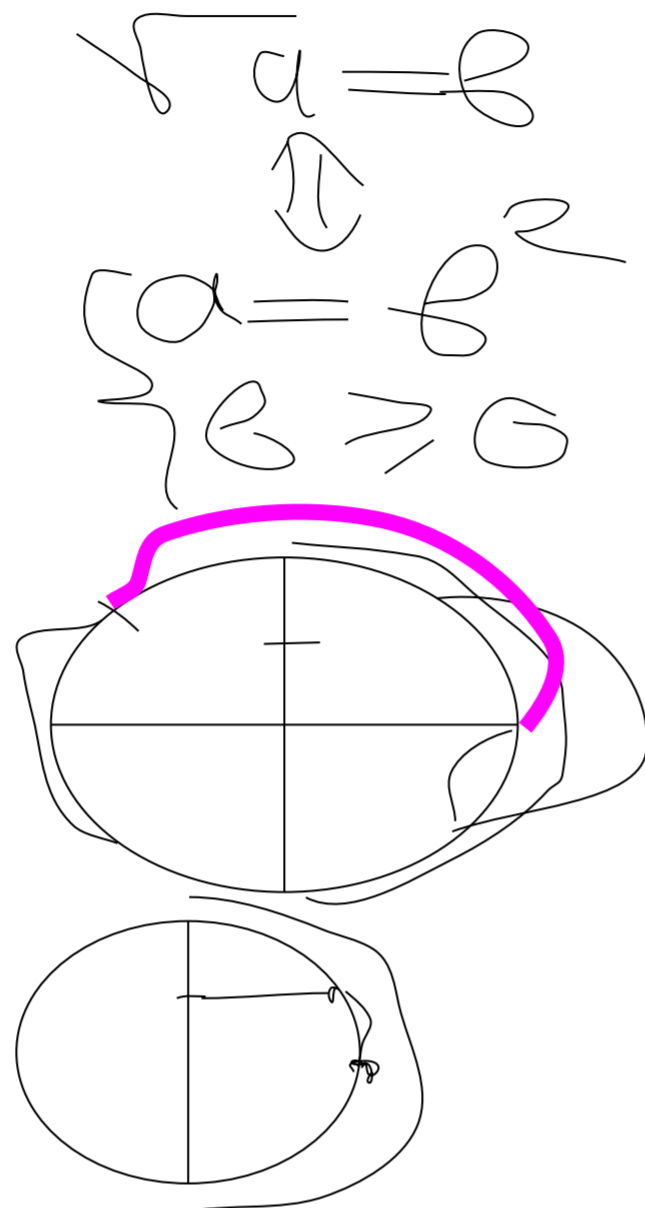
$$P/2 + 2Pk$$

| | | | | | |
|---|---|---|----|---|--|
| | 1 | 0 | -2 | 1 | |
| 1 | 1 | 1 | -1 | 0 | |

$$\cos 2x >= 0$$

$$-P/2 + 2Pk \leq 2x \leq P/2 + 2Pk$$

$$-P/4 + Pk \leq x \leq P/4 + Pk$$



$$V(1 - \cos 2x) = \sin 2x$$

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

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

$$1 - (\cos x - \sin x)(\cos x + \sin x) = 1 - \cos^2(2x)$$

$$\cos 2x = \cos^2(2x)$$

$$\cos 2x - \cos^2(2x) = 0$$

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

$$\cos 2x = 0$$

$$2x = P/2 + Pk$$

$$x = P/4 + Pk/2$$

$$1 - \cos 2x = 0$$

$$\cos 2x = 1$$

$$2x = 2Pk$$

$$x = Pk$$

$$\sin 2x >= 0$$

$$2Pk \leq 2x \leq P + 2Pk$$

$$Pk \leq x \leq P/2 + Pk$$

Ответ:

$$x = P/4 + Pk$$

$$x = Pk$$

