

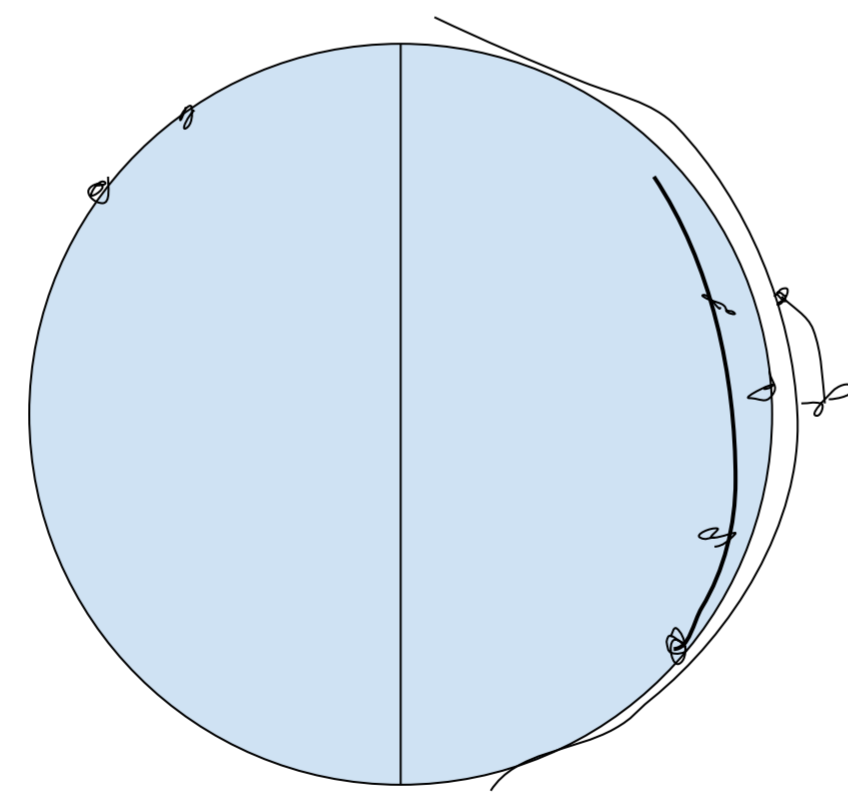
$$\begin{aligned}
V(\sin x + \cos x) &= \cos 2x \quad |^2 \\
\sin x + \cos x &= \cos^2 2x \\
\cos^2 2x &= 1 - \sin^2 2x \\
\sin x + \cos x - 1 &= \sin^2 2x \\
\sin x + \cos x - 1 &= (2 \sin x \cos x)^2 \\
\sin x + \cos x - 1 &= 4 \sin^2 x \cos^2 x \\
\sin x + \cos x &= t \\
t^2 &= \sin^2 x + 2 \sin x \cos x + \cos^2 x \\
t^2 &= 1 + 2 \sin x \cos x \\
\sin x \cos x &= (t^2 - 1)/2 \\
t - 1 &= 4 \cdot ((t^2 - 1)/2)^2 \\
t - 1 &= (t^2 - 1)^2 \\
t - 1 &= t^4 - 2t^2 + 1 \\
t^4 - 2t^2 - t + 2 &= 0 \\
t^3 + t^2 - t - 2 &= 0 \\
\sin x + \cos x &= \cos^2 2x \\
\sin x + \cos x &= (\cos^2 x - \sin^2 x)^2 \\
\sin x + \cos x &= (\cos x - \sin x)^2 (\cos x + \sin x)^2 \\
(\sin x + \cos x) \cdot (1 - (\cos x + \sin x) \cdot (\cos x - \sin x)^2) &= 0 \\
\sin x + \cos x &= 0 \\
\sqrt{2} \cdot (\sin x / \sqrt{2} + \cos x / \sqrt{2}) &= 0 \\
\sin t &= 1/\sqrt{2} \\
\cos t &= 1/\sqrt{2} \\
t &= \pi/4 \\
\sqrt{2} \cdot (\sin x \cdot \cos t + \cos x \cdot \sin t) &= 0 \\
\sin(x+t) &= 0 \\
x+t &= \pi n \\
x+\pi/4 &= \pi n \\
x &= \pi n - \pi/4 \\
1) x &= -\pi/4 + 2\pi n \\
2) x &= -3\pi/2 + 2\pi n \\
(1 - (\cos x + \sin x) \cdot (\cos x - \sin x)^2) &= 0 \\
(\cos x + \sin x) \cdot (\cos x - \sin x)^2 &= 1 \\
(\cos x + \sin x) \cdot (\cos^2 x - 2 \sin x \cos x + \sin^2 x) &= 1 \\
(\cos x + \sin x) \cdot (1 - 2 \sin x \cos x) &= 1 \\
\cos x + \sin x &= t \\
t \cdot (1 - 2 \cdot (t^2 - 1)/2) &= 1 \\
t \cdot (1 - t^2 + 1) &= 1 \\
t \cdot (2 - t^2) &= 1 \\
2t - t^3 &= 1 \\
t^3 - 2t + 1 &= 0 \\
t^2 + t - 1 &= 0 \\
D = 1 + 4 &= 5 \\
t_1 &= (-1 + \sqrt{5})/2 \\
t_2 &= (-1 - \sqrt{5})/2
\end{aligned}$$

$$\begin{matrix} & 1 & 0 & -2 & 1 \\ 1 & 1 & 1 & -1 & 0 \end{matrix}$$

$$\begin{aligned}
\sin x + \cos x &= 1 \\
\sin(x + \pi/4) &= 1/\sqrt{2} \\
x + \pi/4 &= \pi/4 + 2\pi n \\
x &= 2\pi n \\
x + \pi/4 &= 3\pi/4 + 2\pi n \\
x &= \pi/2 + 2\pi n \\
\sin x + \cos x &= (-1 + \sqrt{5})/2 \\
\sin(x + \pi/4) &= (-1 + \sqrt{5})/2\sqrt{2} \\
x + \pi/4 &= \arcsin((-1 + \sqrt{5})/2\sqrt{2}) + 2\pi n \\
x &= \arcsin((-1 + \sqrt{5})/2\sqrt{2}) - \pi/4 + 2\pi n \\
x + \pi/4 &= \pi - \arcsin((-1 + \sqrt{5})/2\sqrt{2}) + 2\pi n \\
x &= \pi - \arcsin((-1 + \sqrt{5})/2\sqrt{2}) - \pi/4 + 2\pi n \\
\sin x(x + \pi/4) &= (-1 - \sqrt{5})/2\sqrt{2} \quad \text{Нет решений}
\end{aligned}$$

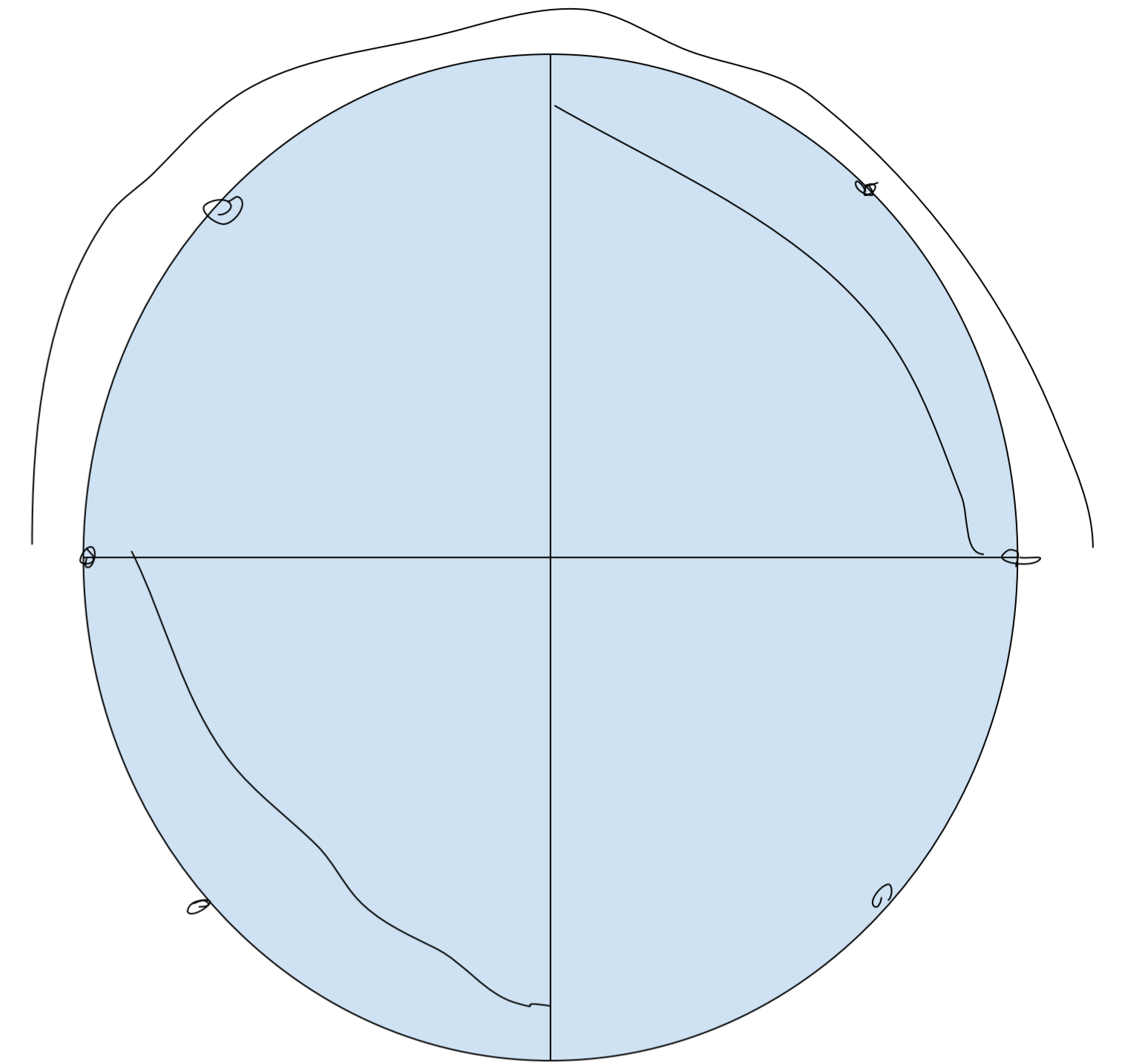
$$\sqrt{a} = b \Leftrightarrow \begin{cases} a = b^2 \\ b \geq 0 \end{cases}$$

$$\begin{aligned}
\cos 2x &\geq 0 \\
-\pi/2 + 2\pi k &\leq 2x \leq \pi/2 + 2\pi k \\
-\pi/4 + \pi k &\leq x \leq \pi/4 + \pi k
\end{aligned}$$



Ответ:  $-\pi/4 + 2\pi n; 2\pi n; \arcsin((-1 + \sqrt{5})/2\sqrt{2}) - \pi/4 + 2\pi n$

$$\begin{aligned}
V(1 - \cos 2x) &= \sin 2x \quad |^2 \\
1 - \cos 2x &= \sin^2 2x \\
\sin x^2 2x &= 1 - \cos^2 2x \\
1 - \cos 2x &= 1 - \cos^2 2x \\
\cos^2 2x - \cos 2x &= 0 \\
\cos 2x &= y \\
y^2 - y &= 0 \\
y(y - 1) &= 0 \\
y_1 &= 0 \\
y_2 &= 1 \\
\cos 2x &= 0 \\
2x &= \pi/2 + \pi n \\
x &= \pi/4 + \pi n/2 \\
\cos 2x &= 1 \\
2x &= 2\pi n \\
x &= \pi n \\
\sin 2x &\geq 0 \\
2\pi k &\leq 2x \leq \pi + 2\pi k \\
\pi k &\leq x \leq \pi/2 + \pi k
\end{aligned}$$



Ответ:  $\pi/4 + \pi n; \pi n$