$$\left|\frac{x^2}{2}+x-\frac{1}{\sqrt2}\right|-3x+\frac{3}{\sqrt2}<\frac{3x^2}{2}-\left|\frac{x^2}{2}+x-\sqrt2\right|$$

1. Рассмотрим $f(x)=\left|\frac{x^2}{2}+x-\frac{1}{\sqrt2}\right|-3x+\frac{3}{\sqrt2}-\frac{3x^2}{2}+\left|\frac{x^2}{2}+x-\sqrt2\right|$

$D(f)=(-\infty;+\infty)$.

2. $f(x)=0$; $\left|\frac{x^2}{2}+x-\frac{1}{\sqrt2}\right|-3x+\frac{3}{\sqrt2}-\frac{3x^2}{2}+\left|\frac{x^2}{2}+x-\sqrt2\right|=0 \quad |\cdot 2$

$$|x^2+2x-\sqrt2|-6x+3\sqrt2-3x^2+|x^2+2x-2\sqrt2|=0$$

$$|x^2+2x-\sqrt2|-3(x^2+2x-\sqrt2)+|x^2+2x-2\sqrt2|=0.$$

Пусть $x^2+2x-\sqrt2=t$; $|t|-3t+|t-\sqrt2|=0$

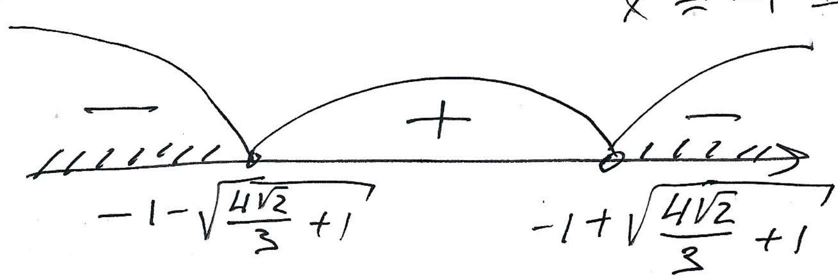
$$\left[\begin{array}{l}\begin{cases} t\le 0\\ -t-3t-t+\sqrt2=0\end{cases}\\ \begin{cases} 0<t\le\sqrt2\\ \cancel{t}-3t-\cancel{t}+\sqrt2=0\end{cases}\\ \begin{cases} t>\sqrt2\\ t-3t+t-\sqrt2=0\end{cases}\end{array}\right. \qquad \left[\begin{array}{l}\varnothing\\ \\ t=\frac{\sqrt2}{3}\\ \\ \varnothing\end{array}\right.$$

Обратная замена:

$$x^2+2x-\sqrt2=\frac{\sqrt2}{3} \Rightarrow x^2+2x-\frac{4\sqrt2}{3}$$

$$(x+1)^2=\frac{4\sqrt2}{3}+1$$

$$x=-1\pm\sqrt{\frac{4\sqrt2}{3}+1}$$



$$x\in\left(-\infty;-1-\sqrt{\frac{4\sqrt2}{3}+1}\right)\cup\left(-1+\sqrt{\frac{4\sqrt2}{3}+1}\right).$$