$$\frac{(x^2+x+1)^2-2|x^3+x^2+x|-3x^2}{10x^2-17x-6}\geq 0$$

1. Рассмотрим $f(x)=\frac{(x^2+x+1)^2-2|x^3+x^2+x|-3x^2}{10x^2-17x-6}$

$10x^2-17x-6\neq 0 \Rightarrow x\neq -\frac{3}{10};\ x\neq 2$

$D(f)=(-\infty;-\frac{3}{10})\cup(-\frac{3}{10};2)\cup(2;+\infty).$

2. $f(x)=0;\quad \frac{(x^2+x+1)^2-2|x^3+x^2+x|-3x^2}{10x^2-17x-6}=0$

$$(x^2+x+1)^2-2|x^3+x^2+x|-3x^2=0$$

$$(x^2+x+1)^2-2|x|\cdot\overbrace{|x^2+x+1|}^{>0}-3x^2=0$$

$$(x^2+x+1)^2-2|x|(x^2+x+1)-3x^2=0.$$

Если $x\geq 0$, то $(x^2+x+1)^2-2x(x^2+x+1)-3x^2=0 \mid :x^2\neq 0.$

$$\left(x+1+\frac{1}{x}\right)^2-2\cdot\left(x+1+\frac{1}{x}\right)-3=0$$

$$\left(x+1+\frac{1}{x}\right)^2-2\left(x+1+\frac{1}{x}\right)+1=4$$

$$\left(x+1+\frac{1}{x}-1\right)^2=4$$

$$x+\frac{1}{x}=\pm 2$$

$$\left[\begin{array}{l} x+\frac{1}{x}=2 \\ x+\frac{1}{x}=-2 \end{array}\right. \quad \left[\begin{array}{l} x^2-2x+1=0 \\ x^2+2x+1=0 \end{array}\right. \quad \left[\begin{array}{l} (x-1)^2=0 \\ (x+1)^2=0 \end{array}\right. \quad \left[\begin{array}{l} x_1=1 \\ x_2=-1\notin[0;+\infty) \end{array}\right.$$

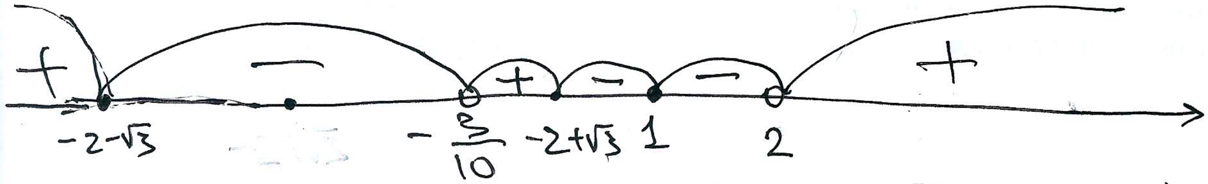
Если $x<0$, то $(x^2+x+1)^2+2x(x^2+x+1)-3x^2=0 \mid :x^2\neq 0.$

$$\left(x+\frac{1}{x}+1\right)^2+2\cdot\left(x+\frac{1}{x}+1\right)-3=0$$

$$\left(x+\frac{1}{x}+1+1\right)^2=4 \Rightarrow \left(x+\frac{1}{x}+2\right)=\pm 2$$

$$\left[\begin{array}{l} x+\frac{1}{x}+2=2 \\ x+\frac{1}{x}+2=-2 \end{array}\right. \quad \left[\begin{array}{l} x^2+1=0 \\ x^2+4x+1=0 \end{array}\right. \Rightarrow (x+2)^2=3$$

$$x=-2\pm\sqrt{3}$$



$$x\in(-\infty;-2-\sqrt{3}]\cup(-\frac{3}{10};-2+\sqrt{3}]\cup(2;+\infty)\cup\{1\}.$$