1. $\dfrac{\sqrt{x^2+4x+4}-\sqrt{x^2-x}}{x^2-x-1}\le 0$ $\qquad 1\cdot\sqrt{x^2+4x+4}+\sqrt{x^2-x}$

$D=1+4=5$

$\dfrac{x^2+4x+4-x^2+x}{\left(x-\frac{1+\sqrt5}{2}\right)\left(x-\frac{1-\sqrt5}{2}\right)}\le 0$ $\qquad (x+2)^2=\ge 0$

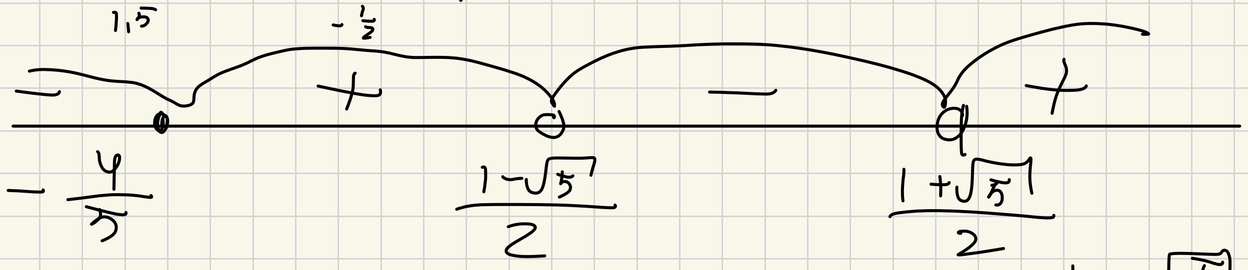
$x(x-1)\ge 0$

$x\in(-\infty;0]\cup[1;+\infty)$

$x\ne\frac{1-\sqrt5}{2}$ $\quad x\ne\frac{1+\sqrt5}{2}$

$\dfrac{5x+4}{\left(x-\frac{1+\sqrt5}{2}\right)\left(x-\frac{1-\sqrt5}{2}\right)}\le 0$

$1{,}5$ $\quad -\frac12$



Ответ: $x\in\left(-\infty;-\frac45\right]\cup\left[\frac{1-\sqrt5}{2};0\right]\cup\left[1;\frac{1+\sqrt5}{2}\right)$

$(|a|-|b|)(|a|+|b|)=a^2-b^2=(a-b)$

2. $\dfrac{|x^2+2x-3|-|x^2+3x+5|}{2x+1}\ge 0$ $\qquad |\cdot|x^2+2x-3|+|x^2+3x+5|$

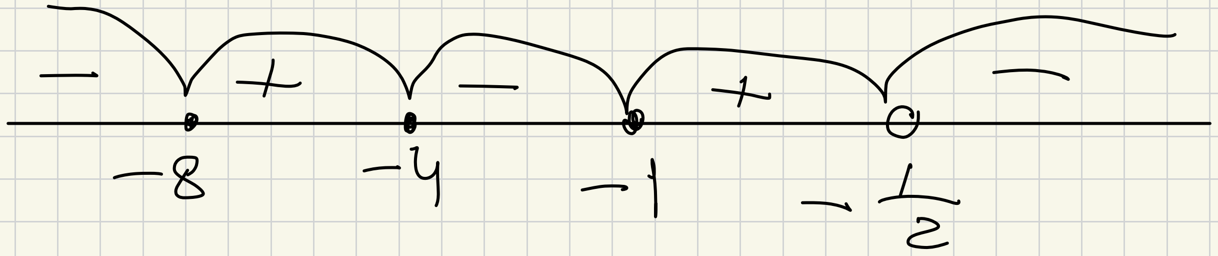
$\dfrac{(\cancel{x^2}+2x-3-\cancel{x^2}-3x-5)(x^2+2x-3+x^2+3x+5)}{2x+1}\ge 0$

$\dfrac{(-x-8)(2x^2+5x+2)}{2x+1}\ge 0$ $\qquad$ ОДЗ $x\ne\frac12$

$D=25-16=9$

$x_{1,2}=\frac{-5\pm3}{2}=-4;-1$

$\dfrac{(-x-8)(x+4)(x+1)}{2x+1}\ge 0$



Ответ: $x \in [-8; -4] \cup [-1; \frac{1}{2})$

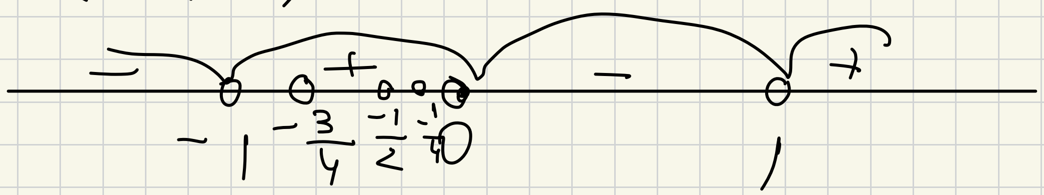
3. $\frac{1}{8x^2+6x} \geq \frac{1}{\sqrt{8x^2+6x+1}-1}$

Пусть $\sqrt{8x^2+6x+1} = t$ $\quad t \geq 0$

$\frac{1}{t^2-1} - \frac{1 \; ^{t+1}}{t-1} \geq 0$

$\frac{-t}{(t-1)(t+1)} \geq 0 \quad | \cdot -1$

$\frac{t}{(t-1)(t+1)} \leq 0$



Ответ: $x \in (-\infty; -1) \cup (0; 1)$

$8x^2+6x \neq 0$

$D = 36$

$x_{1,2} = \frac{-6 \pm 6}{16}$; 0; $-\frac{12}{16}$, $-\frac{3}{4}$

$8x^2+6x+1 \geq 0$

$D = 36-32 = 4$

$\frac{-6 \pm 2}{16} = -\frac{1}{2}; -\frac{1}{4}$

12

самостав

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

5) $$\frac{x^3-4x^2-3x+18-x^2+2x+3-2x^2+4x+6}{} \leq 0$$

$$\frac{x^3-7x^2+3x+27}{x^2-2x-3} \leq 0$$