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$$1 > \sqrt{x^2-2x} - x$$

$$x+1 > \sqrt{x^2-2x} \qquad \sqrt{x^2-2x} < x+1$$

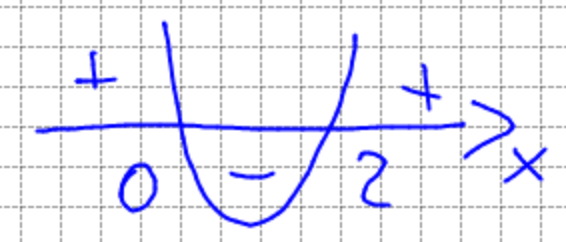
$$\sqrt{A(x)} < B(x)$$

$$\begin{cases} A_{(x)} \geq 0 \\ B_{(x)} > 0 \\ A_{(x)} < B_{(x)}^2 \end{cases}$$

$$\begin{cases} x^2-2x \geq 0 \\ x+1 > 0 \\ x^2-2x < (x+1)^2 \end{cases} \quad \begin{cases} x \leq 0 \cup x \geq 2 \\ x > -1 \\ x^2-2x < x^2+1+2x \end{cases}$$

$$x^2-2x = 0$$

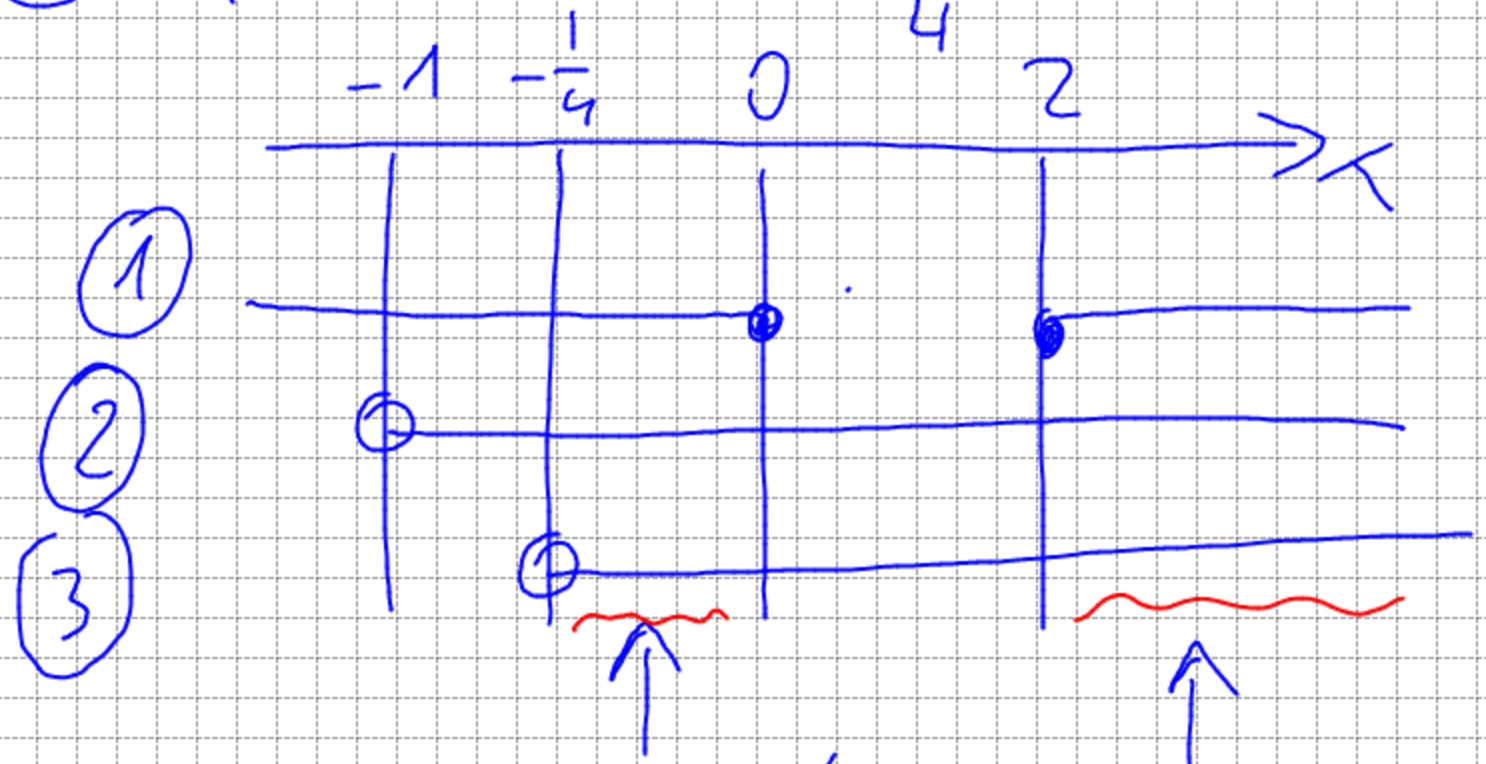
$$x(x-2) = 0$$



① $x \leq 0 \cup x \geq 2$

② $x > -1$

③ $4x > -1 \rightarrow x > -\frac{1}{4}$



$$S: \left\{ x \in \mathbb{R} \,/\, -\frac{1}{4} < x \leq 0 \cup x \geq 2 \right\} =$$

$$= \left(-\frac{1}{4}; 0 \right] \cup [2; +\infty)$$

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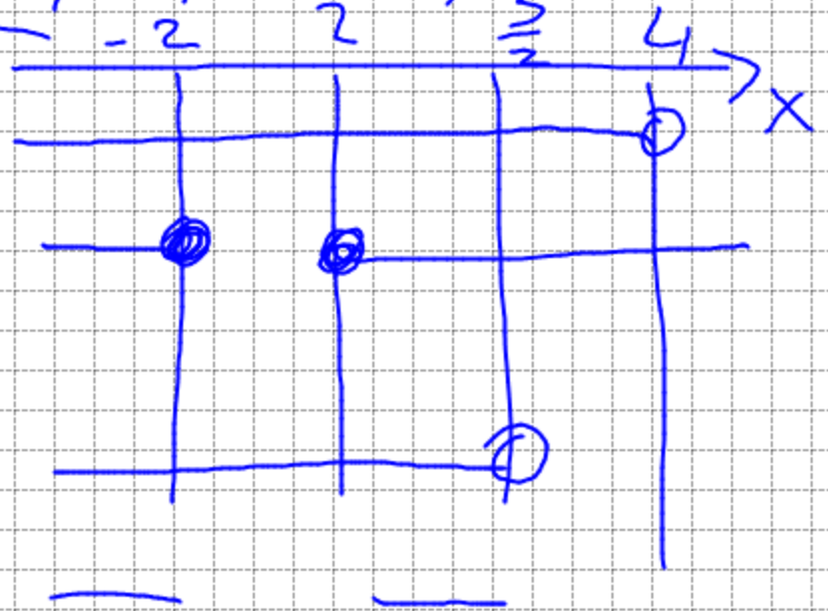
$$\sqrt{x^2-4} \le 4-x$$

$$\begin{cases} 4-x>0 \\ x^2-4 \ge 0 \\ x^2-4 \le (4-x)^2 \end{cases}$$

$$\begin{cases} x<4 \\ x \le -2 \cup x \ge 2 \\ x^2-4 \le 16+x^2-8x \end{cases}$$



① $x<4$

② $x \le -2 \cup x \ge 2$

③ $8x<20 \rightarrow x<\frac{5}{2}$

$$S = \left\{ x \in \mathbb{R} \mid x \le -2 \cup 2 \le x < \frac{5}{2} \right\}$$

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$\sqrt{x(x-4)+4} > 2x+1$

$\sqrt{A(x)} > B(x)$

$\begin{cases} 2x+1<0 \\ x(x-4)+4 \geq 0 \end{cases} \cup \begin{cases} 2x+1 \geq 0 \\ x(x-4)+4 > (2x+1)^2 \end{cases}$

$\sqrt{A(x)}$

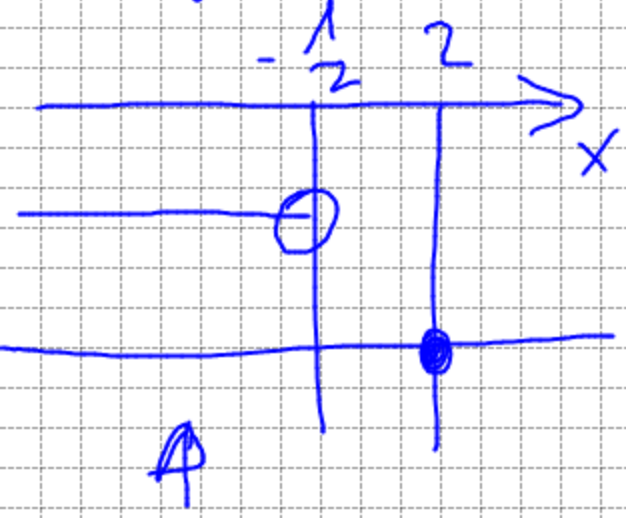
$-3x^2-8x+3>0$

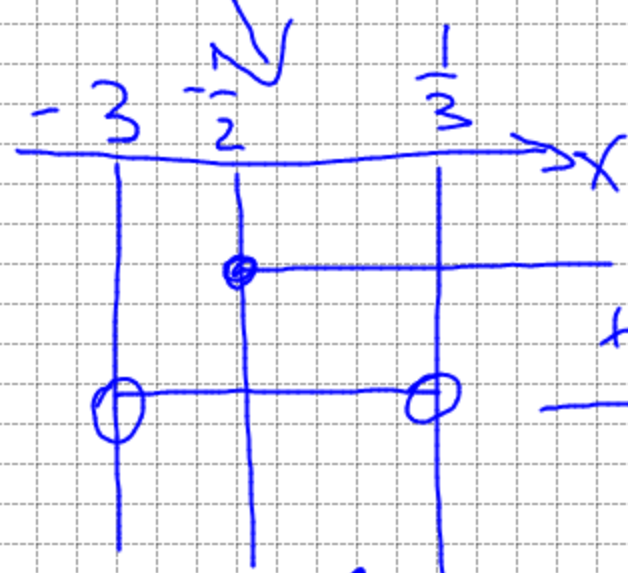
$\begin{cases} 2x<-1 \\ x^2-4x+4 \geq 0 \end{cases} \cup \begin{cases} 2x \geq -1 \\ x^2-4x+4 > 4x^2+1+4x \end{cases}$

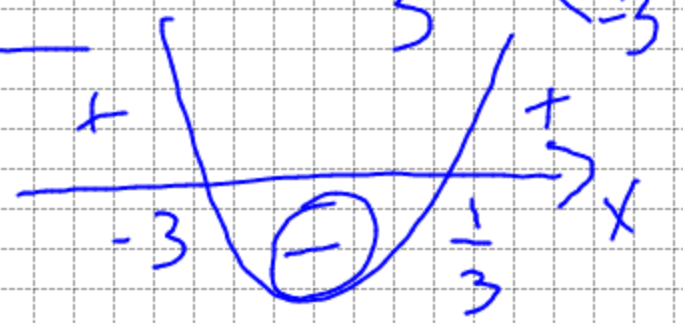
$3x^2+8x-3<0$

$\begin{cases} x<-\frac{1}{2} \\ (x-2)^2 \geq 0 \end{cases} \cup \begin{cases} x \geq -\frac{1}{2} \\ 3x^2+8x-3<0 \end{cases}$

$x_{1,2} = \frac{-4 \pm \sqrt{16+9}}{3} = \frac{-4 \pm 5}{3} \quad \frac{1}{3} \quad -3$







A

$x < -\frac{1}{2} \cup -\frac{1}{2} \leq x < \frac{1}{3}$