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$$|2x - 1| > \frac{1}{\sqrt{x}}$$

$$2x - 1 < -\frac{1}{\sqrt{x}} \quad \vee \quad 2x - 1 > \frac{1}{\sqrt{x}}$$

$$\frac{1}{\sqrt{x}} < 1 - 2x$$

$$\frac{1}{\sqrt{x}} < 2x - 1$$

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

 \vee

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

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

 \vee

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

$$4x^2 - 4x + 1 - \frac{1}{x} > 0$$

$$\frac{4x^3 - 4x^2 + x - 1}{x} > 0$$

$$\frac{4x^2(x-1) + (x-1)}{x} > 0$$

$$\frac{(x-1)(4x^2+1)}{x} > 0 \Rightarrow$$

$$\begin{array}{l} \text{I)} \quad \frac{x-1}{x} > 0 \\ \text{II)} \quad x > 0 \end{array}$$

$$\text{II)} \quad x-1 > 0 \Rightarrow x > 1$$

$$\text{I)} \quad x > 0$$

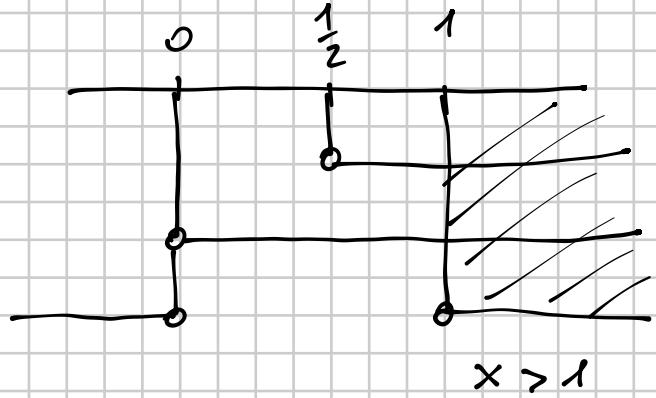
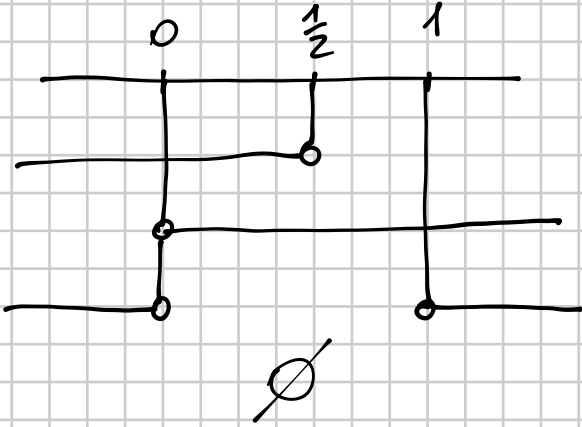
	0	1
-	-	+
-	+	+
+	-	+

$$x < 0 \quad \vee \quad x > 1$$

$$\begin{cases} x < \frac{1}{2} \\ x > 0 \\ x < 0 \vee x > 1 \end{cases}$$

\vee

$$\begin{cases} x > \frac{1}{2} \\ x > 0 \\ x < 0 \vee x > 1 \end{cases}$$



$$x > 1$$

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$$\sqrt{3x+5} < \frac{3x+1}{\sqrt{3x-5}}$$

$$a < b \quad \text{con} \quad a, b \geq 0$$

$$\Updownarrow$$

$$a^2 < b^2$$

$$\begin{cases} 3x+5 \geq 0 \\ 3x-5 > 0 \\ 3x+1 > 0 \\ 3x+5 < \frac{(3x+1)^2}{3x-5} \end{cases}$$

possibile moltiplicare per $(3x-5)$
entrambi i membri (senza
fare studio dei segni) perché
 $3x-5 > 0$

$$\begin{cases} x \geq -\frac{5}{3} \\ x > \frac{5}{3} \\ x > -\frac{1}{3} \end{cases} \Rightarrow x > \frac{5}{3}$$

$$\cancel{9x^2} - 25 < \cancel{9x^2} + 1 + 6x$$

$$\begin{cases} x > \frac{5}{3} \\ 6x > -26 \end{cases} \Rightarrow \begin{cases} x > \frac{5}{3} \\ x > -\frac{13}{3} \end{cases}$$

$$\boxed{x > \frac{5}{3}}$$

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$$|x| \leq \sqrt{2x-1}$$

$$\left\{ \begin{array}{l} x \geq 0 \\ x \leq \sqrt{2x-1} \end{array} \right. \vee \left\{ \begin{array}{l} x < 0 \\ -x \leq \sqrt{2x-1} \end{array} \right.$$

ALTERNATIVA

$$-\sqrt{2x-1} \leq x \leq \sqrt{2x-1}$$

$$\Downarrow$$

$$\left\{ \begin{array}{l} x \leq \sqrt{2x-1} \quad (1) \\ -\sqrt{2x-1} \leq x \quad (2) \end{array} \right.$$

$$(1)$$

$$x \leq \sqrt{2x-1}$$

$$\sqrt{2x-1} \geq x$$

$$\left\{ \begin{array}{l} x < 0 \\ 2x-1 \geq 0 \end{array} \right. \vee \left\{ \begin{array}{l} x \geq 0 \\ 2x-1 \geq x^2 \end{array} \right.$$

$$\left\{ \begin{array}{l} x < 0 \\ x \geq \frac{1}{2} \\ \emptyset \end{array} \right. \vee \left\{ \begin{array}{l} x \geq 0 \\ x^2 - 2x + 1 \leq 0 \\ (x-1)^2 \leq 0 \end{array} \right.$$

$$\left\{ \begin{array}{l} x \geq 0 \\ x = 1 \end{array} \right. \Rightarrow x = 1$$

$$\textcircled{2} \quad -\sqrt{2x-1} \leq x$$

$$\sqrt{2x-1} \geq -x$$

$$\begin{cases} -x < 0 \\ 2x-1 \geq 0 \end{cases} \vee \begin{cases} -x \geq 0 \\ 2x-1 \geq x^2 \end{cases}$$

$$\begin{cases} x > 0 \\ x \geq \frac{1}{2} \end{cases} \vee \begin{cases} x \leq 0 \\ x^2 - 2x - 1 \leq 0 \end{cases}$$

$$\Downarrow \\ x \geq \frac{1}{2}$$

$$\begin{cases} x \leq 0 \\ x = 1 \quad \emptyset \end{cases}$$

$$x \geq \frac{1}{2}$$

SOLUZ. FINALE

$$\begin{cases} \textcircled{1} & x = 1 \\ \textcircled{2} & x \geq \frac{1}{2} \end{cases} \Rightarrow \boxed{x = 1}$$

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$$|x| \leq \sqrt{2x-1}$$

$$\sqrt{2x-1} \geq |x|$$

$$\begin{cases} |x| < 0 \\ 2x-1 \geq 0 \end{cases}$$

 \emptyset

$$\vee \begin{cases} |x| \geq 0 \\ 2x-1 \geq x^2 \end{cases}$$

$$\vee \begin{cases} x \in \mathbb{R} \\ x^2 - 2x + 1 \leq 0 \end{cases}$$

$$(x-1)^2 \leq 0$$

$$x=1$$

$$\boxed{x=1}$$