871 N]

$$\frac{\sqrt{2x^2-3x+1}-1}{x-3-\sqrt{x^2+2x}} > 0 \qquad \left[0 < x \leq \frac{1}{2} \vee 1 \leq x < \frac{3}{2}\right]$$

D]

$N > 0$ $\qquad \sqrt{2x^2-3x+1}-1 > 0$

$$\sqrt{2x^2-3x+1} > 1$$

$$2x^2-3x+\cancel{1} > \cancel{1}$$

$$x(2x-3) > 0 \qquad\qquad x < 0 \quad \vee \quad x > \frac{3}{2}$$
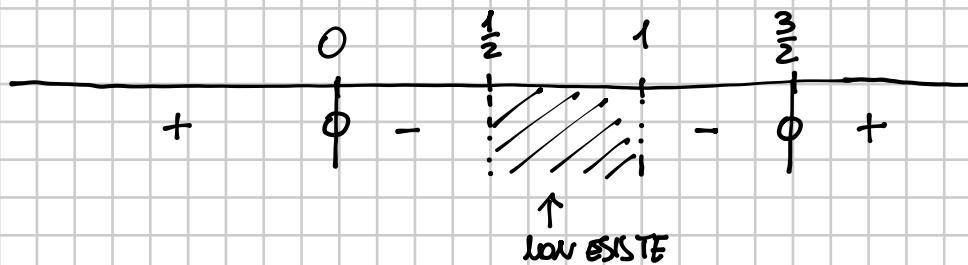
C.E. $\quad 2x^2-3x+1 \geq 0$

$\qquad \Delta = 9-8 = 1$

$\qquad x = \frac{3\pm1}{4} = \begin{cases} \frac{1}{2} \\ 1 \end{cases}$

$\qquad x \leq \frac{1}{2} \quad \vee \quad x \geq 1$

Quindi la situazione del <u>segno del numeratore</u> è:

↑
NON ESISTE

$D > 0$
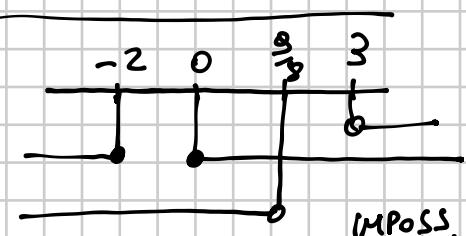
$$x-3-\sqrt{x^2+2x} > 0$$

$$\sqrt{x^2+2x} < x-3$$
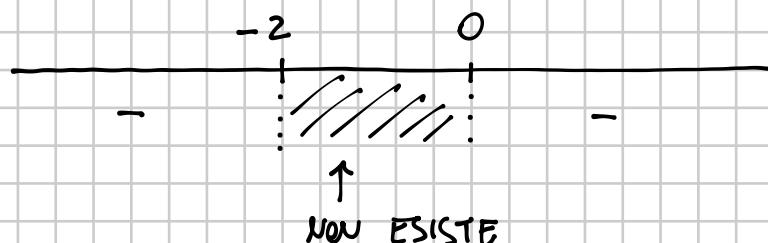
$$\begin{cases} x-3 > 0 \\ x^2+2x \geq 0 \\ \cancel{x^2}+2x < 9+\cancel{x^2}-6x \end{cases} \qquad \begin{cases} x > 3 \\ x \leq -2 \quad \vee \quad x \geq 0 \\ x < \frac{9}{8} \end{cases}$$
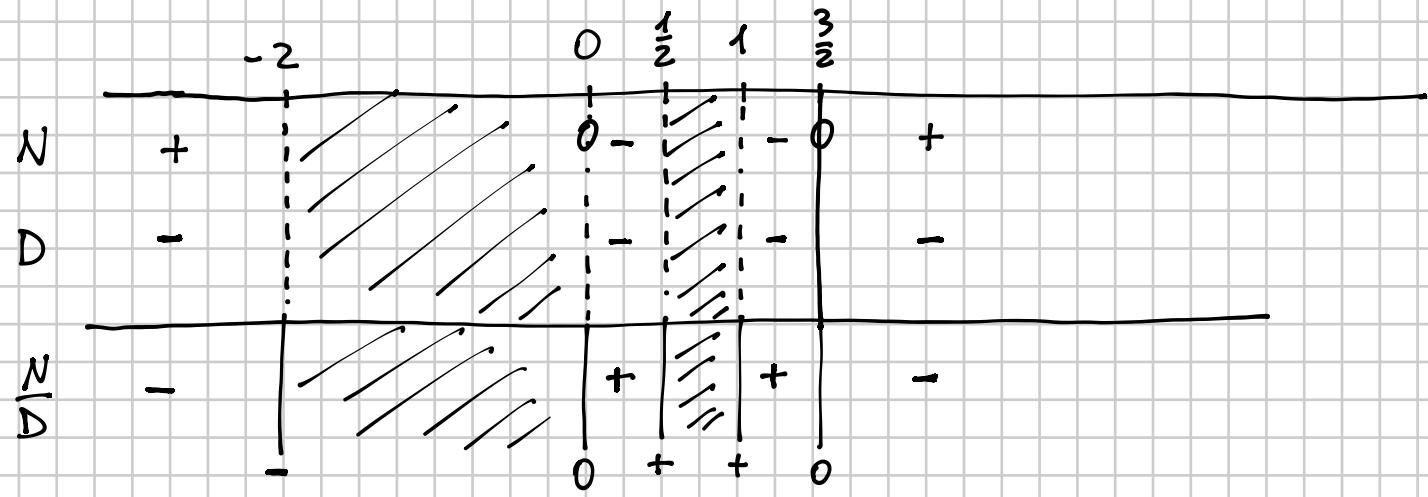
C.E. $\quad x^2+2x \geq 0$

$\qquad x(x+2) \geq 0$

$\qquad x \leq -2 \quad \vee \quad x \geq 0$

IMPOSS.

∅

La situazione del <u>segno del denominatore</u> è

↑
NON ESISTE

$$0 < x \leq \frac{1}{2} \quad \lor \quad 1 \leq x < \frac{3}{2}$$

820 $\sqrt{3x-2}+2>x$ $\qquad \left[\dfrac{2}{3} \leq x < 6\right]$

$$\sqrt{3x-2} > x-2$$

$$\begin{cases} x-2<0 \\ 3x-2 \geq 0 \end{cases} \quad \lor \quad \begin{cases} x-2 \geq 0 \\ 3x-2 > x^2+4-4x \end{cases}$$

$$\begin{cases} x<2 \\ x \geq \frac{2}{3} \end{cases} \quad \lor \quad \begin{cases} x \geq 2 \\ x^2-7x+6<0 \qquad (x-6)(x-1)<0 \end{cases}$$

$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad 1<x<6$$

$$\frac{2}{3} \leq x < 2 \qquad \lor \qquad\qquad\qquad \Downarrow$$

$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad 2 \leq x < 6$$

$$\boxed{\dfrac{2}{3} \leq x < 6}$$

853 $\dfrac{5x}{\sqrt{-5x-1}} < 2$ $\left[x < -\dfrac{1}{5}\right]$

$$\begin{cases} -5x-1 > 0 \\[4pt] 5x < 2\sqrt{-5x-1} \end{cases} \qquad \begin{cases} x < -\dfrac{1}{5} \\[4pt] 2\sqrt{-5x-1} > 5x \end{cases}$$

$$\begin{cases} 5x < 0 \\[4pt] -5x-1 > 0 \end{cases} \quad \vee \quad \begin{cases} 5x \geqslant 0 \\[4pt] 4(-5x-1) > 25x^2 \end{cases}$$

$$\begin{cases} x < 0 \\[4pt] x < -\dfrac{1}{5} \end{cases} \quad \vee \quad \begin{cases} x \geqslant 0 \\[4pt] -20x-4 > 25x^2 \end{cases}$$

$$\Downarrow$$

$$x < -\dfrac{1}{5}$$

$(5x+2)^2$

$25x^2 + 20x + 4 < 0$

$\dfrac{\triangle}{4} = 100 - 100 = 0$

$\varnothing$

$$\boxed{x < -\dfrac{1}{5}}$$

845 $\sqrt{x^2 - 5x + 6} > \sqrt{x^2 - 5x + 4}$

$[x \leq 1 \vee x \geq 4]$

$$\begin{cases} x^2 - 5x + 6 \geqslant 0 \\[3pt] x^2 - 5x + 4 \geqslant 0 \\[3pt] \cancel{x^2} - 5x + 6 > \cancel{x^2} - 5x + 4 \end{cases} \qquad \begin{cases} (x-3)(x-2) \geqslant 0 \\[3pt] (x-1)(x-4) \geqslant 0 \\[3pt] 6 > 4 \end{cases} \qquad \begin{cases} x \leq 2 \ \vee \ x \geqslant 3 \\[3pt] x \leqslant 1 \ \vee \ x \geqslant 4 \\[3pt] \forall x \end{cases}$$

$$\Downarrow$$

$$\boxed{x \leq 1 \ \vee \ x \geqslant 4}$$

639 $1 - |2x - 7| < 0$ $[x < 3 \lor x > 4]$

$$-|2x - 7| < -1$$

$$|2x - 7| > 1$$

$$2x - 7 < -1 \qquad \lor \qquad 2x - 7 > 1$$

$$2x < 6 \qquad\qquad 2x > 8$$

$$\boxed{x < 3 \qquad \lor \qquad x > 4}$$

$$|A(x)| < B(x) \qquad\qquad\qquad |A(x)| > B(x)$$

$$\Downarrow \qquad\qquad\qquad\qquad\qquad \Downarrow$$

$$-B(x) < A(x) < B(x) \qquad\qquad A(x) < -B(x) \quad \lor \quad A(x) > B(x)$$

$$\begin{cases} A(x) < B(x) \\ A(x) > -B(x) \end{cases}$$