

$$\begin{cases} |x-1| > 0 \\ \sqrt{x^2-4x+3} < 3-2x \end{cases}$$

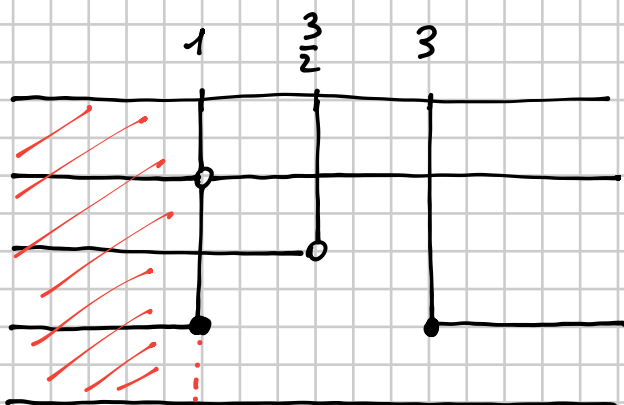
$$[x < 1]$$

$$\begin{cases} x \neq 1 \\ 3-2x > 0 \\ x^2-4x+3 \geq 0 \\ x^2-4x+3 < 9+4x^2-12x \end{cases}$$

$$\begin{cases} x \neq 1 \\ x < \frac{3}{2} \\ (x-3)(x-1) \geq 0 \\ 3x^2-8x+6 > 0 \end{cases}$$

$$\begin{cases} x \neq 1 \\ x < \frac{3}{2} \\ x \leq 1 \vee x \geq 3 \\ \forall x \end{cases}$$

$$\frac{\Delta}{4} = 16 - 18 < 0$$



$$x < 1$$

72 $\frac{|x-5|-2x}{\sqrt{x-3}-x+1} \geq 0$

$[x \geq 3]$

Nelle disequazioni fra frazioni irrazionali è meglio calcolare subito le C.E., ricercando per quali x esistono le radici.

$x-3 \geq 0 \Rightarrow x \geq 3$ C.E.

$N \geq 0 \quad |x-5|-2x \geq 0 \quad |x-5| \geq 2x$
 $\quad \quad \quad x-5 \leq -2x \quad \vee \quad x-5 \geq 2x$
 $\quad \quad \quad 3x \leq 5 \quad \vee \quad -x \geq 5$
 $\quad \quad \quad x \leq \frac{5}{3} \quad \vee \quad x \leq -5$
 $\quad \quad \quad \Downarrow$
 $\quad \quad \quad x \leq \frac{5}{3}$

$D > 0 \quad \sqrt{x-3} - x + 1 > 0 \quad \sqrt{x-3} > x - 1$

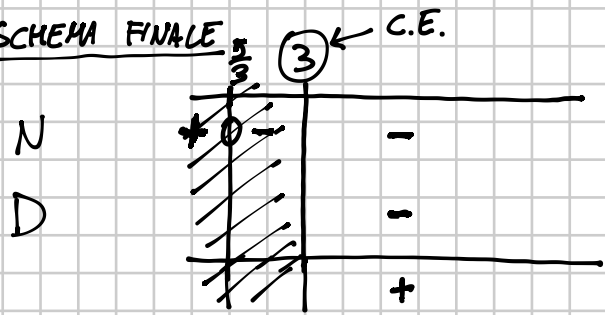
$\begin{cases} x-1 < 0 \\ x-3 \geq 0 \end{cases} \quad \vee \quad \begin{cases} x-1 \geq 0 \\ x-3 > x^2 - 2x + 1 \end{cases}$

$\begin{cases} x < 1 \\ x \geq 3 \end{cases} \quad \vee \quad \begin{cases} x \geq 1 \\ x^2 - 3x + 4 < 0 \end{cases}$
 $\quad \quad \quad \emptyset \quad \quad \quad \Delta = 9 - 16 < 0 \quad \emptyset$

Questo significa che il denominatore, dove esiste (cioè per $x \geq 3$) non è mai > 0 . È sempre ≤ 0 . Bisogna controllare se è uguale a 0 per qualche x :

$\sqrt{x-3} - x + 1 = 0 \Rightarrow \sqrt{x-3} = x - 1 \Rightarrow \begin{cases} x-1 \geq 0 \\ x-3 = x^2 - 2x + 1 \\ \Delta < 0 \quad \emptyset \end{cases}$

SCHEMA FINALE



$x \geq 3$

$$|x+5| - 3 \leq x + |2x-4|$$

$$[x \leq 1 \vee x \geq 3]$$

$$x+5 > 0 \Rightarrow x > -5$$

$$2x-4 > 0 \Rightarrow x > 2$$

		-5		2	
		0		0	
$x+5$	-	0	+	0	+
$2x-4$	-	0	-	0	+

$$\left\{ \begin{array}{l} x \leq -5 \\ \cancel{-x-5-3 \leq x-2x+4} \end{array} \right. \vee \left\{ \begin{array}{l} -5 < x < 2 \\ \cancel{x+5-3 \leq x-2x+4} \end{array} \right. \vee \left\{ \begin{array}{l} x \geq 2 \\ \cancel{x+5-3 \leq x+2x-4} \end{array} \right.$$

$$\left\{ \begin{array}{l} x \leq -5 \\ -8 \leq 4 \end{array} \right. \vee \left\{ \begin{array}{l} -5 < x < 2 \\ x \leq 1 \end{array} \right. \vee \left\{ \begin{array}{l} x \geq 2 \\ x \geq 3 \end{array} \right.$$

$$x \leq -5 \quad \vee \quad -5 < x \leq 1 \quad \vee \quad x \geq 3$$

$x \leq 1 \quad \vee \quad x \geq 3$