ESERCIZIO n. 5

domenica 8 dicembre 2024 11:18

PROVA 1 $\quad \dfrac{2-|3x+1|}{|4x-1|-x} \geq 0$

N: $\quad 2-|3x+1| \geq 0 \Rightarrow |3x+1| \leq 2 \Rightarrow \begin{cases} 3x+1 \geq -2 \\ 3x+1 \leq 2 \end{cases} \Rightarrow$

$\Rightarrow \begin{cases} 3x \geq -3 \\ 3x \leq 1 \end{cases} \Rightarrow \begin{cases} x \geq -1 \\ x \leq \frac{1}{3} \end{cases}$ $\qquad S_1: \; -1 \leq x \leq \frac{1}{3}$

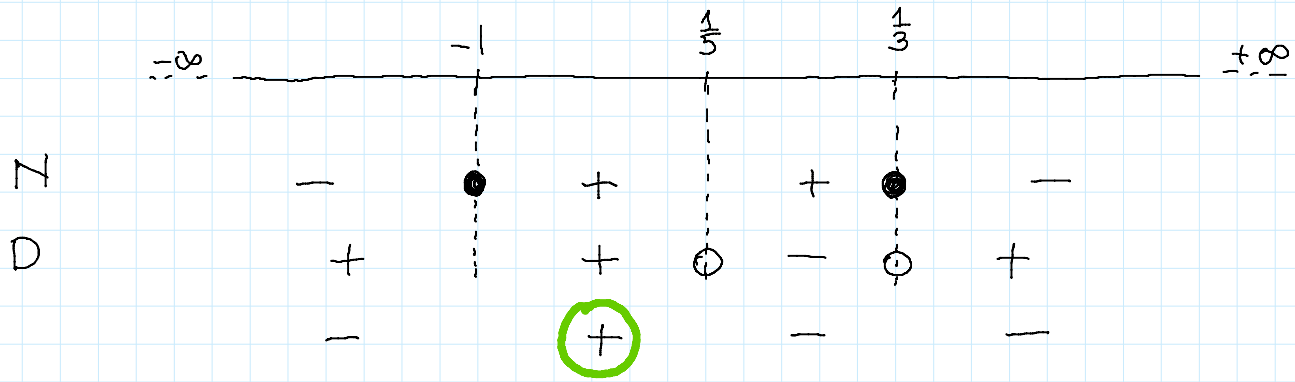
D: $\quad |4x-1|-x > 0 \Rightarrow |4x-1| > x \Rightarrow$

$\Rightarrow \quad 4x-1 < -x \;\vee\; 4x-1 > x$

$5x < 1 \;\vee\; 3x > 1$

$x < \frac{1}{5} \;\vee\; x > \frac{1}{3}$ $\qquad S_2: \; x < \frac{1}{5} \;\vee\; x > \frac{1}{3}$

Facciamo il grafico dei segni



Soluzione $\quad S: \; -1 \leq x < \frac{1}{5}$

PROVA n. 2 $\quad \dfrac{2-|4x+1|}{|3x-1|-x} \geq 0$

$$N: \quad 2-|4x+1| \geq 0 \Rightarrow |4x+1| \leq 2 \Rightarrow \begin{cases} 4x+1 \geq -2 \\ 4x+1 \leq 2 \end{cases} \Rightarrow$$

$$\Rightarrow \begin{cases} 4x \geq -3 \\ 4x \leq 1 \end{cases} \Rightarrow \begin{cases} x \geq -\frac{3}{4} \\ x \leq \frac{1}{4} \end{cases} \qquad S_1: -\frac{3}{4} \leq x \leq \frac{1}{4}$$

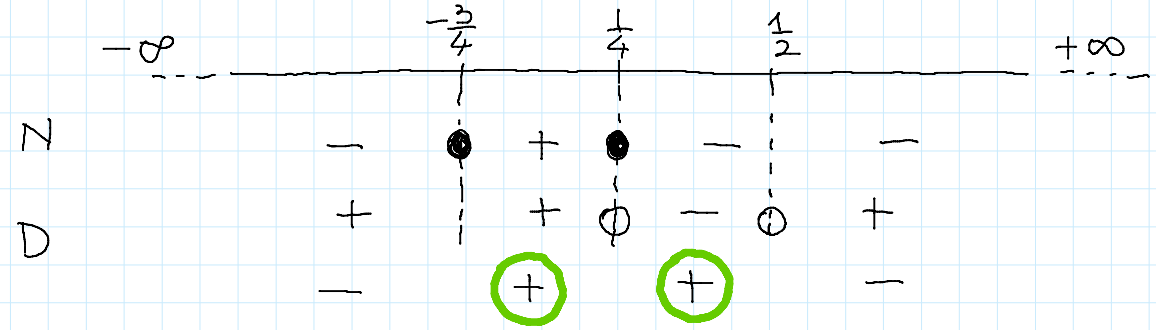
$$D: \quad |3x-1|-x > 0 \Rightarrow |3x-1| > x$$

$$3x-1 < -x \quad \vee \quad 3x-1 > x$$

$$4x < 1 \quad \vee \quad 2x > 1$$

$$x < \frac{1}{4} \quad \vee \quad x > \frac{1}{2} \qquad S_2: x < \frac{1}{4} \vee x > \frac{1}{2}$$

Facciamo il grafico dei segni



$$S: -\frac{3}{4} \leq x < \frac{1}{2} \wedge x \neq \frac{1}{4}$$