ESERCIZI & RIPASSO SU

GLI INTERVALLI, GLI INTORNI E LE FUNZIONI

AS 2020-21 5 BLL

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$$A = \{x \in \mathbb{R} : 3 < x < 7\}$$

E' UN INTERVALLO ?

SI

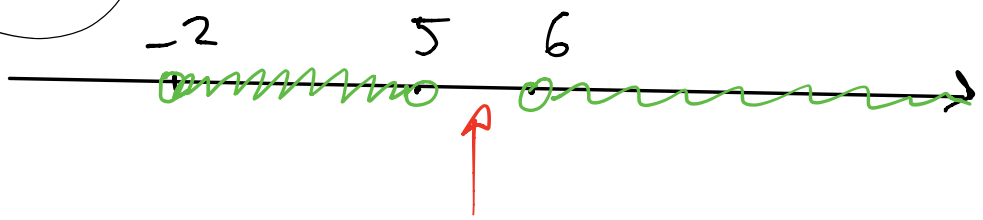
SEGMENTO

⇝

$$B = \{x \in \mathbb{R} : -2 < x < 5 \ \vee \ x > 6\}$$

E' UN INTERVALLO?

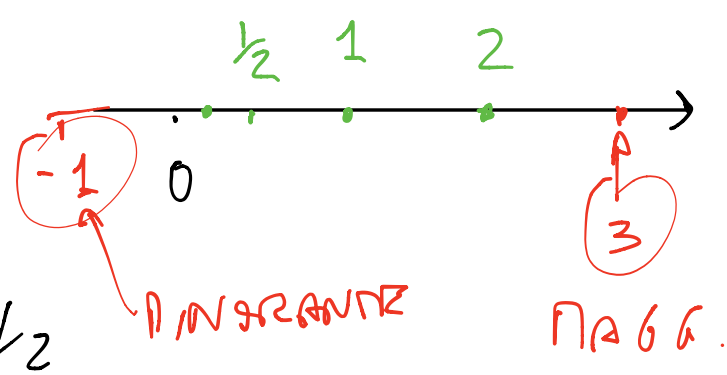
NO



B = UNIONE DI DUE INTERVALLI DISGIUNTI.

$$C = \left\{x \in \mathbb{R} : x = \frac{2}{n+1} \quad n \in \mathbb{N}\right\}$$

n	$x = 2/n+1$
0	2
1	1
2	$2/3$
3	$2/4 = 1/2$



: | :

E' UN INTERVALLO ? → NO

E' LIMITATO → SI → HA SIA MAGGIOR. CHE MINORANTI

$\sup\{C\} = ?$ $\quad \inf\{C\}$

$\sup\{C\} = 2 = \max\{C\}$

$\inf\{C\} = 0$ NO MIN !

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75 $y = \dfrac{\sqrt{4x+1}}{x}$

1) CLASSIF. FUNZIONE ANALITICA, ALGEBRICA, FRATTA, IRRAZIONALE

2) DOMINIO

PARI

$\sqrt{A} \Rightarrow A \geq 0$

$\frac{1}{Den} \Rightarrow Den \neq 0$

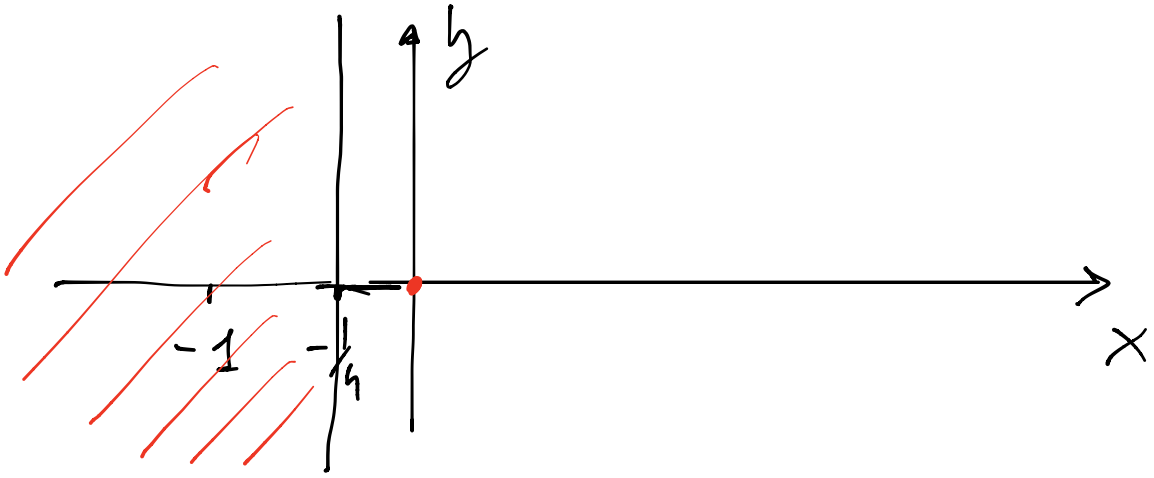
$y = \frac{\sqrt{4x+1}}{x}$

$4x+1 \geq 0 \wedge x \neq 0$

$$\begin{cases} 4x+1 \geq 0 \\ x \neq 0 \end{cases}$$

$$\begin{cases} x \geq -1/4 \\ x \neq 0 \end{cases}$$

$$\text{Dom}[f] = \left\{ x \in \mathbb{R} : x \geq -\frac{1}{4} \wedge x \neq 0 \right\}$$

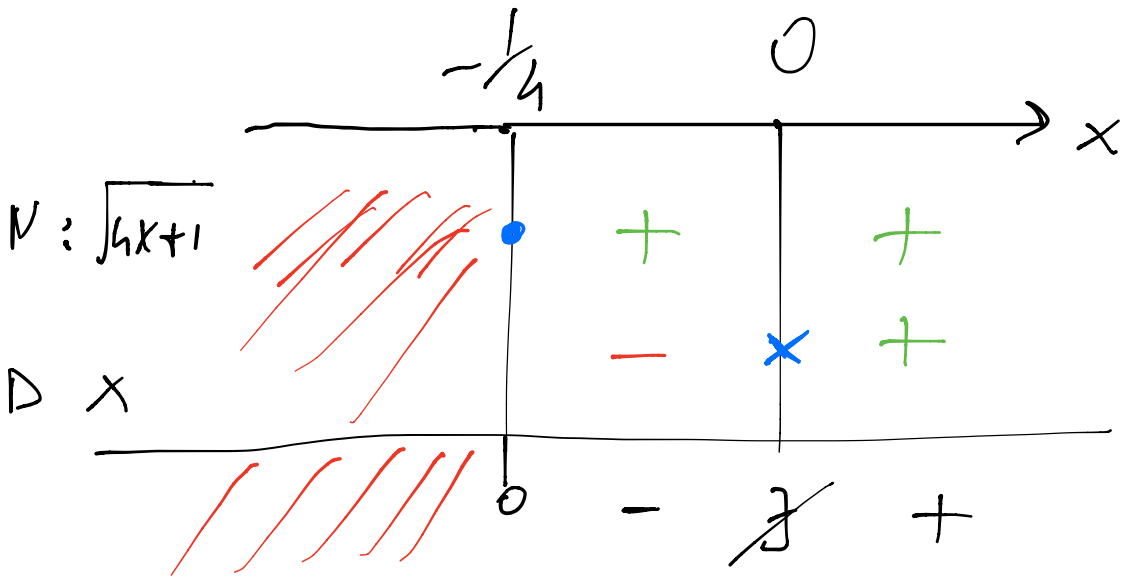


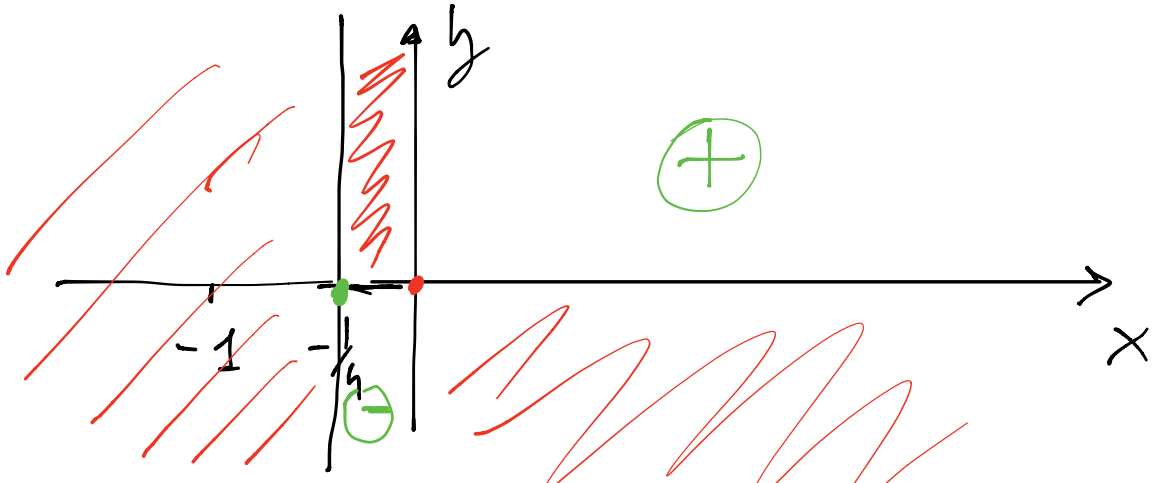
3) SEGNO $f(x) \geq 0$

$$\frac{\sqrt{4x+1}}{x} \geq 0$$

N : $+\sqrt{4x+1} \geq 0$ ⇒ QUANDO LA RADICE ESISTE (NEL DOMINIO) E' POSITIVA (+)

D : $x > 0$





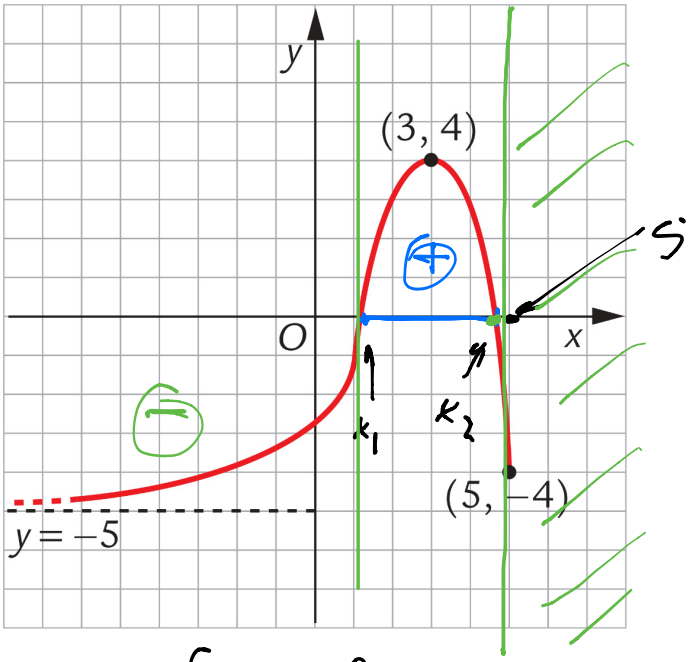
DOM. N/D : $D = \{x \in \mathbb{R} : x \geq -1/4 \wedge x \neq 0\}$

SEGNO : $f(x) \geq 0$

SQRT$(4x+1)/x \geq 0 \Rightarrow x > 0$

RADQ(hx+1)

SQRT = SQUARE ROOT



$Dom = \{x \in \mathbb{R} : x \leq 5\}$

SEGNO: $y > 0$: $x_1 < x < x_2$

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196 $y = \dfrac{x}{x^2 + 4x - 5}$

1) CLASS. : F. ANALITICA, ALGEB. RAZIONALE, FRATTA.

2) DOMINIO

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

$$\Delta = 16+20 = 36 > 0$$

$$x_{1,2} = \frac{-4 \pm 6}{2} \begin{cases} 1 \\ -5 \end{cases}$$

DOMINIO: $Dom = \{x \in \mathbb{R} : x \neq 1, x \neq -5\}$

$$\mathbb{R} - \{+1; -5\}.$$

3) SEGNO:

$$y \geq 0 : \quad \frac{x}{x^2+4x-5} \geq 0$$

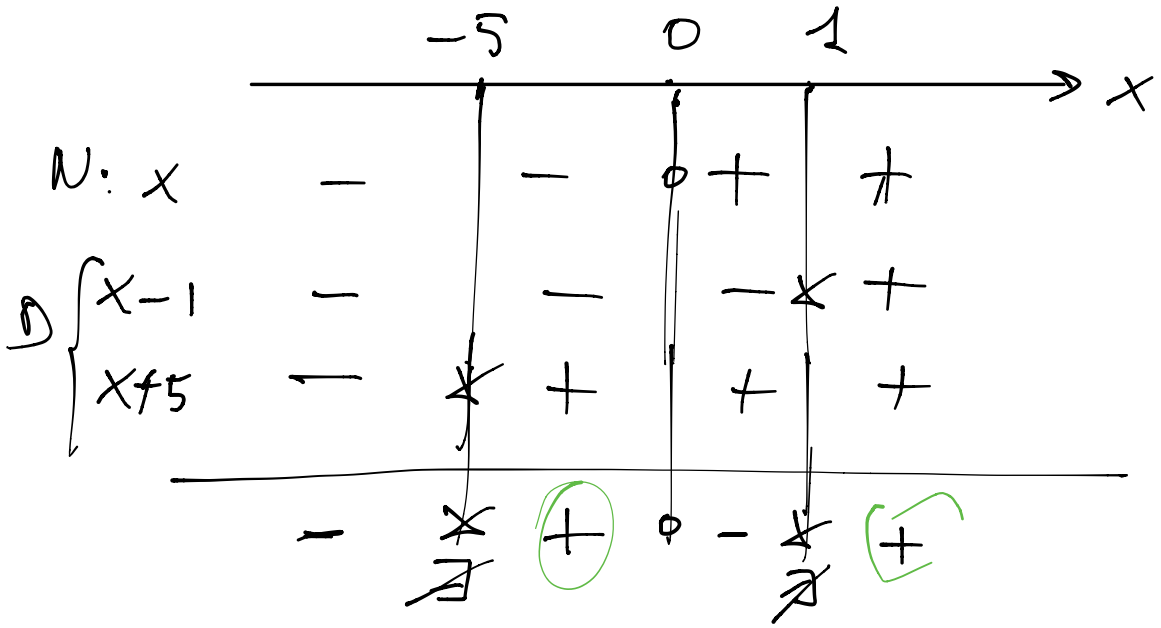
N: $x \geq 0$

D: $x^2 + 4x - 5 > 0$ $\quad x_{1,2} = 1; -5$

$(x-1)(x+5) > 0$

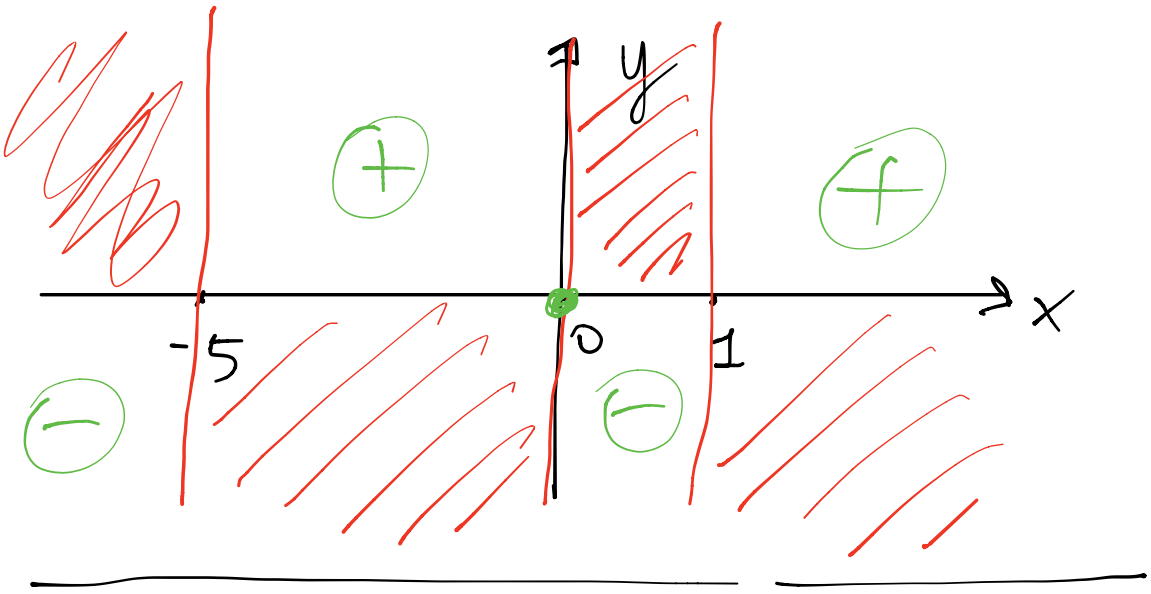
I: $x - 1 > 0 \quad x > 1$

II $x + 5 > 0 \quad x > -5$



SE MA: $y \geq 0$: $-5 < x \leq 0$

$\vee \quad x > 1$


y
x
-5
0
1
+
+
−
−