14/2/2022

390 $\begin{cases} x^2 - 4y^2 = 0 \\ (x^2 - y^2)(x^2 + y^2) = x + 13y \end{cases}$

$$\begin{cases} (x-2y)(x+2y) = 0 \Rightarrow x = 2y \lor x = -2y \\ x^4 - y^4 = x + 13y \end{cases}$$

$$\begin{cases} x = 2y \\ 16y^4 - y^4 = 2y + 13y \end{cases} \lor \begin{cases} x = -2y \\ 16y^4 - y^4 = -2y + 13y \end{cases}$$

$15y^4 - 15y = 0$

$15y(y^3 - 1) = 0$

$$\begin{cases} y = 0 \lor y = 1 \\ x = 2y \end{cases}$$

$$\begin{cases} x = 0 \\ y = 0 \end{cases} \lor \begin{cases} x = 2 \\ y = 1 \end{cases}$$

$15y^4 - 11y = 0$

$y(15y^3 - 11) = 0$

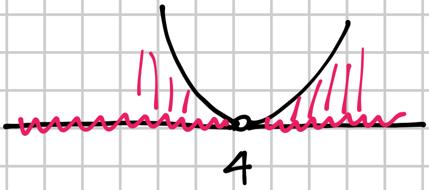
$$\begin{cases} y = 0 \lor 15y^3 - 11 = 0 \\ \qquad y^3 = \frac{11}{15} \\ \qquad y = \sqrt[3]{\frac{11}{15}} \\ x = -2y \end{cases}$$

$$\begin{cases} x = 0 \\ y = 0 \end{cases} \lor \begin{cases} x = -2\sqrt[3]{\frac{11}{15}} \\ y = \sqrt[3]{\frac{11}{15}} \end{cases}$$

$$(0,0) \quad (2,1) \quad \left(-2\sqrt[3]{\frac{11}{15}}, \sqrt[3]{\frac{11}{15}}\right)$$

200 $x^2 - 8x + 16 > 0$ $[\forall x \in \mathbf{R} - \{4\}]$

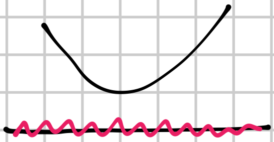
$\Delta = 0$ $\quad (x-4)^2 > 0$ $\quad S = \mathbb{R} - \{4\}$



203 $-2x^2 - \sqrt{5} \leq 0$ $[\forall x \in \mathbf{R}]$

CAMBIO SEGNI

$2x^2 + \sqrt{5} \geq 0$ $\quad \Delta = b^2 - 4ac = -4 \cdot 2 \cdot \sqrt{5} = -8\sqrt{5} < 0$

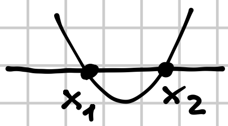
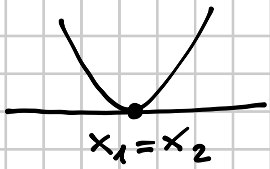
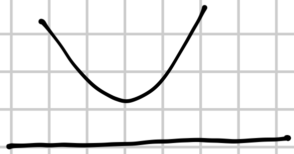
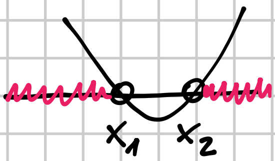
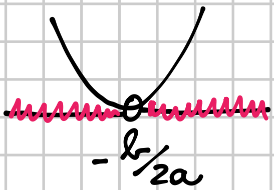
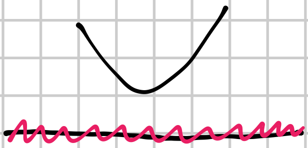
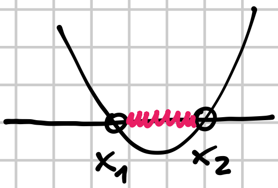
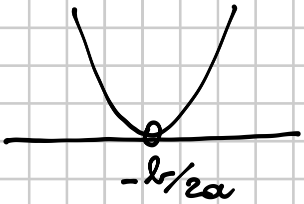
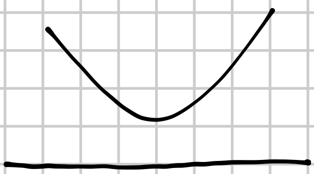
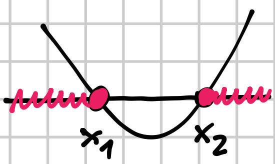
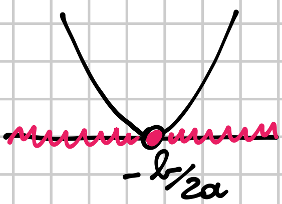
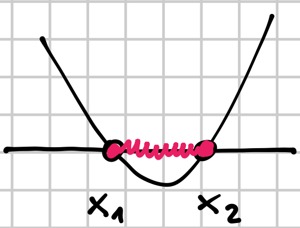
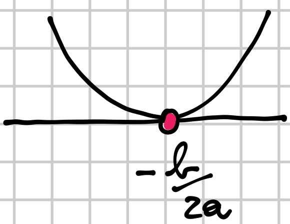


$S = \mathbb{R}$

SCHEMA RIASSUNTIVO

$\boxed{a > 0}$

x_1, x_2 RADICI DEL POLINOMIO $ax^2 + bx + c$ CON $x_1 < x_2$

	$\Delta > 0$	$\Delta = 0$	$\Delta < 0$
$ax^2 + bx + c = 0$	2 SOLUZIONI REALI DISTINTE 	2 SOLUZ. REALI COINCIDENTI 	IMPOSSIBILE 
$ax^2 + bx + c > 0$	$x < x_1 \vee x > x_2$ 	$x \neq -\frac{b}{2a}$ 	$x \in \mathbb{R}$ 
$ax^2 + bx + c < 0$	$x_1 < x < x_2$ 	$\emptyset$ IMPOSSIBILE 	$\emptyset$ IMPOSSIBILE 
$ax^2 + bx + c \geq 0$	$x \leq x_1 \vee x \geq x_2$ 	$x \in \mathbb{R}$ 	$x \in \mathbb{R}$ 
$ax^2 + bx + c \leq 0$	$x_1 \leq x \leq x_2$ 	$x = -\frac{b}{2a}$ 	$\emptyset$ IMPOSSIBILE 

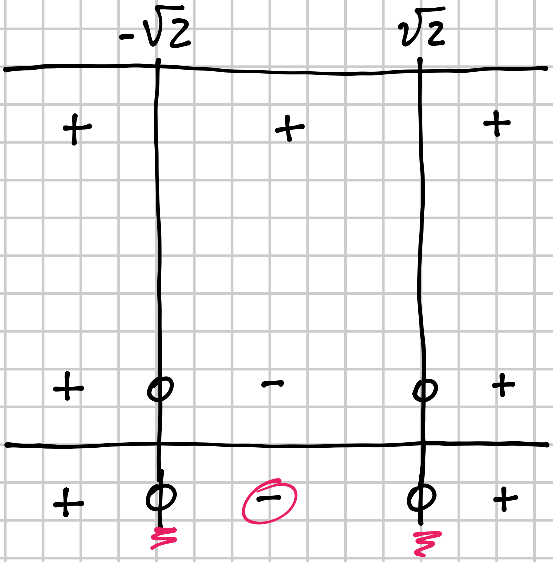
284 $(x^2 - x + 5)(2 - x^2) \geq 0$ $\quad [-\sqrt{2} \leq x \leq \sqrt{2}]$

$$\underset{N_1}{(x^2 - x + 5)}\,\underset{N_2}{(x^2 - 2)} \leq 0$$

$N_1 > 0 \qquad x^2 - x + 5 > 0$

$\Delta = (-1)^2 - 4 \cdot 5 < 0 \Rightarrow x \in \mathbb{R}$

$N_2 > 0 \qquad x^2 - 2 > 0 \Rightarrow \quad x < -\sqrt{2} \vee x > \sqrt{2}$



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