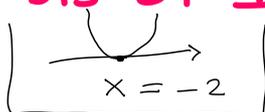


SILVIA MATAIONI

LUN/MER/VEN 12:30 → 14:00

DIS DI II° GRADO

$$x^2 + 4x + 4 \leq 0$$



$$y = x^2 + 4x + 4$$

$a = 1 > 0$

$$x^2 + 3x + 2 < 0$$

$$x^2 + 1 > 0$$

$$2x - x^2 \leq 0$$

$$\boxed{x^2 + 4x + 4 = 0}$$

$$(x + 2)^2 = 0$$

$$x + 2 = 0$$

$$x = -2$$

$$x_{1,2} = \frac{-2 \pm \sqrt{4 - 4}}{1} = -2$$

$$x_{1,2} = \frac{-4 \pm \sqrt{16 - 16}}{2} = \frac{-4}{2} = -2$$

$$\boxed{x^2 + 3x + 2 < 0}$$

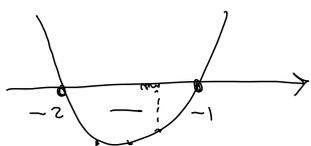
$$x^2 + 3x + 2 = 0$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x_{1,2} = \frac{-3 \pm \sqrt{9 - 8}}{2} = \frac{-3 \pm 1}{2}$$

$$x_1 = -2 \quad x_2 = -1$$

$$y = x^2 + 3x + 2$$



$$-2 < x < -1$$

$$x^2 + 1 > 0 \quad \forall x \in \mathbb{R} \quad \forall \text{ per ogni}$$

$$x^2 + 1 = 0 \quad x^2 = -1 \quad \text{ma } \nexists x \in \mathbb{R} \quad \exists \text{ esiste}$$



$$a = 1 > 0$$

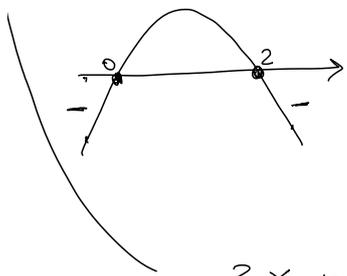
$$2x - x^2 \leq 0$$

$$2x - x^2 = 0$$

$$a = -1$$

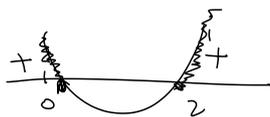
$$x(2 - x) = 0$$

$$\underline{x=0} \quad \underline{z=x}$$



$$x \leq 0 \vee x \geq 2$$

$$\underline{-2x + x^2 \geq 0}$$



**DISFRATTE
IRRAZ**

$$\frac{2-x}{x^2-1} \geq 0$$

$$(2-x)(x^2-1) \geq 0$$

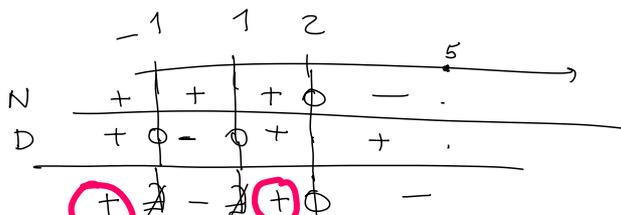
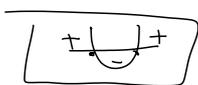
$$\frac{x^2-3x}{\sqrt{x}} > 0$$

$$\frac{2-x}{x^2-1} \geq 0 \quad \begin{cases} 2-x \geq 0 \\ x^2-1 > 0 \end{cases} \quad \begin{cases} 2-x \leq 0 \\ x^2-1 < 0 \end{cases}$$

SCHEMA DEI SEGNI

$$\underline{2-x > 0} \quad ? \quad \underline{2 > x}$$

$$x^2-1=0 \quad ? \quad x = \pm 1$$



$$x < -1 \vee 1 < x \leq 2$$

$$(2-x)(x^2-1) \geq 0$$

$$x \leq -1 \vee 1 \leq x \leq 2$$

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

$x > 0$

$$x^2-3x > 0$$

$$x(x-3) > 0$$

$$x > 0$$

$$x-3 > 0$$

$$x > 3$$

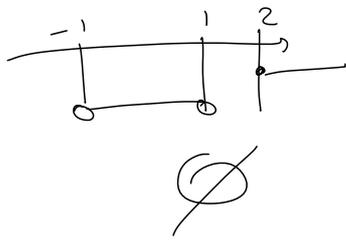
$$\begin{cases} 2-x \geq 0 \end{cases}$$

$$\begin{cases} 2-x \leq 0 \end{cases}$$

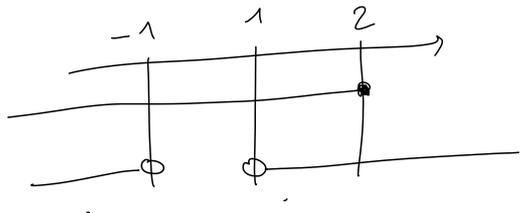
$$\begin{cases} \underline{2 \leq x} \end{cases}$$

$$|x^2 - 1| > 0$$

$$|x^2 - 1| < 0 \quad | -1 < x < 1$$



$$\begin{cases} 2 \geq x \\ x < -1 \vee x > 1 \end{cases}$$



$$x < -1 \vee 1 < x \leq 2$$

SCHEMA DI
ESISTENZA DELLE
SOL.

$$\sqrt{3-x} < x-1$$

DIS
IRRAZ.

$$\sqrt{x-2} \geq x+1$$

$$\frac{3}{x} > \frac{2}{x-1}$$

$$\frac{3}{x} - \frac{2}{x-1} > 0$$

$$\sqrt{x} - \sqrt{x+1} > 0 \iff \sqrt{x} > \sqrt{x+1}$$

$$\begin{cases} x > 0 \\ x+1 > 0 \\ x > x+1 \end{cases}$$

$$\frac{2}{x^2-1} > 1$$

$$\frac{2}{x-1} - 1 > 0$$

$$\sqrt{A(x)} < B(x)$$

$$\begin{cases} A(x) \geq 0 \\ B(x) > 0 \\ A(x) < B^2(x) \end{cases}$$

$$\sqrt{3-x} < x-1$$

$$\begin{cases} 3-x \geq 0 \\ x-1 > 0 \\ 3-x < (x-1)^2 \end{cases}$$

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

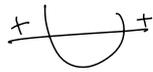
$$\begin{cases} 3 \geq x \\ x > 1 \\ x^2 + 1 - 2x + x - 3 > 0 \end{cases}$$

$$\begin{cases} x \leq 3 \\ x > 1 \\ x^2 - x - 2 > 0 \end{cases}$$

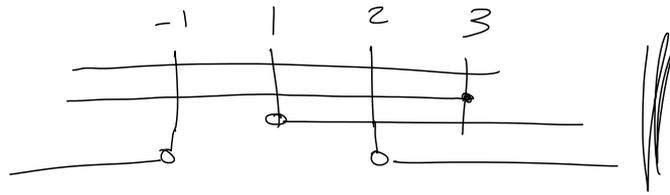
... >

$$x^2 - x - 2 = 0$$

$$\frac{1 \pm \sqrt{1+8}}{2} \begin{cases} \frac{1+3}{2} = 2 \\ \frac{1-3}{2} = -1 \end{cases}$$



$$\begin{cases} x \leq 3 \\ x > 1 \\ x < -1 \vee x > 2 \end{cases}$$



$$2 < x \leq 3$$

$$\frac{-x^2 - 3}{2-x} > 0$$

$$\sqrt{A(x)} > B(x)$$

$$\begin{cases} A(x) \geq 0 \\ B(x) < 0 \end{cases}$$

$$\begin{cases} A(x) \geq 0 \\ B(x) > 0 \\ A(x) > B^2(x) \end{cases}$$

$$\sqrt{x-2} \geq x+1$$

$$\begin{cases} x-2 \geq 0 \\ x+1 < 0 \end{cases}$$

$$\begin{cases} x+1 > 0 \\ x-2 \geq (x+1)^2 \end{cases}$$

$$\begin{cases} x \geq 2 \\ x < -1 \end{cases}$$

$$\begin{cases} x > -1 \\ x-2 \geq x^2 + 1 + 2x \end{cases}$$

\emptyset

$$\begin{cases} x > -1 \\ x-2-x^2-1-2x \geq 0 \end{cases}$$

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

$$\begin{cases} x > -1 \\ x^2 + x + 3 \leq 0 \end{cases} \emptyset$$

$$x^2 + x + 3 = 0$$

$$-1 \pm \sqrt{1-12}$$

\cup

$$\exists x \in \mathbb{R}$$

m.c.m

M.C.D

$$x^4 - 1 = (x^2 - 1)(x^2 + 1) \stackrel{r}{=} \underline{(x-1)} \underline{(x+1)} \underline{(x^2+1)}$$

$$x^2 + 2x + 1 = \underline{(x+1)}^2$$

$$x^2 + x = \underline{x} \underline{(x+1)}$$

$$\text{m.c.m} = (x-1)(x+1)^2(x^2+1)x$$

$$\text{M.C.D} = (x+1)$$

VALORE ASSOLUTO