

DISINQUAZIONE IRRAZIONALE

$$2x - \sqrt{2x^2 + 6x + 4} \leq x - 2$$

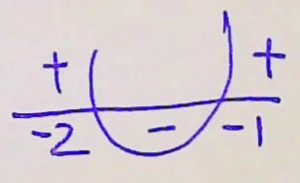
$$-\sqrt{2x^2 + 6x + 4} \leq x - 2 - 2x \quad \sqrt{2x^2 + 6x + 4} \geq x + 2$$

È del tipo $\sqrt{f(x)} \geq g(x) \Rightarrow \begin{cases} f(x) \geq 0 \\ g(x) \leq 0 \end{cases} \cup \begin{cases} g(x) \geq 0 \\ [\sqrt{f(x)}]^2 \geq [g(x)]^2 \end{cases}$

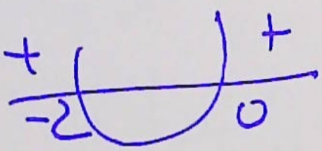
$$S_F: S_1 \cup S_2$$

$$\begin{cases} 2x^2 + 6x + 4 \geq 0 \\ x + 2 < 0 \end{cases} \cup \begin{cases} x + 2 \geq 0 \\ 2x^2 + 6x + 4 \geq x^2 + 4x + 4 \end{cases}$$

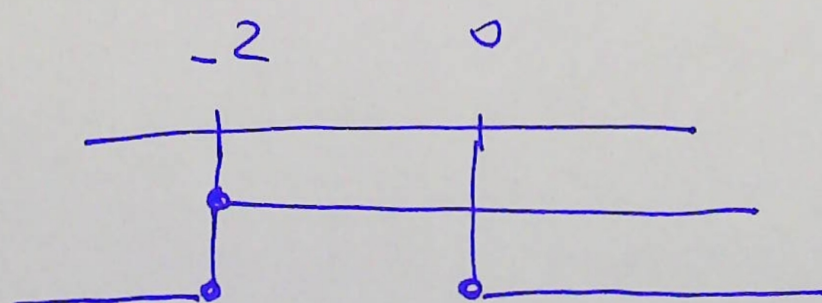
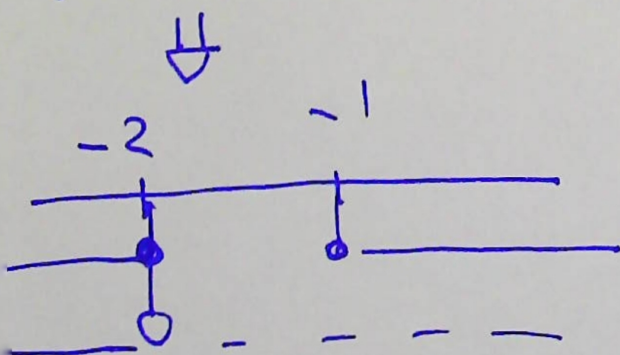
$$\begin{aligned} \textcircled{1} \begin{cases} x^2 + 3x + 2 \geq 0 \\ x + 2 < 0 \end{cases} & \cup \textcircled{3} \begin{cases} x + 2 \geq 0 \\ x^2 + 2x \geq 0 \end{cases} \\ \textcircled{2} \begin{cases} x + 2 < 0 \end{cases} & \cup \textcircled{4} \begin{cases} x^2 + 2x \geq 0 \end{cases} \end{aligned}$$

$\textcircled{1} x^2 + 3x + 2 = 0 \quad x_{1,2} = \frac{-3 \pm \sqrt{9-8}}{2} = \frac{-3 \pm 1}{2} = \begin{cases} -2 \\ -1 \end{cases}$  $x \leq -2 \vee x \geq -1$

$\textcircled{2} x < -2 \quad \textcircled{3} x \geq -2$

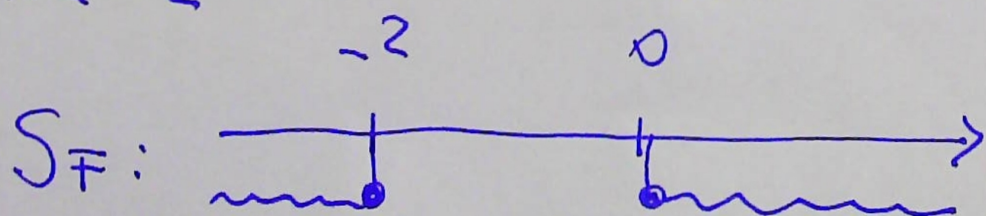
$\textcircled{4} x(x+2) = 0 \quad \begin{cases} -2 \\ 0 \end{cases}$  $x \leq -2 \vee x \geq 0$

$$\begin{aligned} S_1 &= \begin{cases} x \leq -2 \vee x \geq -1 \\ x < -2 \end{cases} \\ S_2 &= \begin{cases} x \geq -2 \\ x \leq -2 \vee x \geq 0 \end{cases} \end{aligned}$$



$$S_1: x < -2$$

$$S_2: x = -2 \vee x \geq 0$$



$$S_F: x \leq -2 \vee x \geq 0$$