

$$\textcircled{1} \quad \ln(x^2 + 5x - 6) > \ln(3x^2 - 3x - 6)$$

$$x^2 + 5x - 6 > 3x^2 - 3x - 6$$

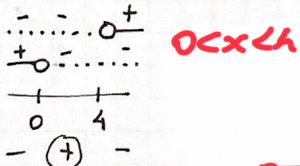
$$-3x^2 + x^2 + 3x + 5x + 6 - 6 > 0$$

**DOV'EI METTERE A
SISTEMA LE C.E.
CON QUESTA**

$$-2x^2 + 8x > 0$$

$$-x(2x + 8) > 0$$

$$\begin{array}{c} x < 0 \\ \vee \\ x > 4 \end{array}$$



$$\textcircled{2} \quad f(x) = \sqrt{\log_2(25-x^2)} + \frac{1}{\sqrt{2^{x^2}-16}}$$

STRETT. NTE > 0

$$\begin{cases} \log_2(25-x^2) \geq 0 & \textcircled{1} \\ 25-x^2 > 0 & \textcircled{2} \\ 2^{x^2}-16 > 0 & \textcircled{3} \end{cases}$$

$$\textcircled{2.1} \quad \log_2(25-x^2) \geq \log_2(2^0) \Rightarrow 25-x^2 \geq 1$$

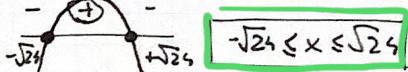
$$\rightarrow 25-x^2 \geq 1 \quad \text{NON QUESTA GUARDA QUESTA}$$

$$-x^2 \geq -24$$

$$x^2 \leq 24$$

$$\Rightarrow x_{1,2} = \pm \sqrt{24}$$

S. J_{2,4}



$$\textcircled{2.2} \quad 25-x^2 > 0$$

$$x^2 < 25$$

$$x_{1,2} = \pm 5$$

$$-5 < x < 5$$

NON SERVE

$$\textcircled{2.3} \quad 2^{x^2}-16 > 0$$

$$2^{x^2} \geq 16$$

$$2^{x^2} \geq 2^4$$

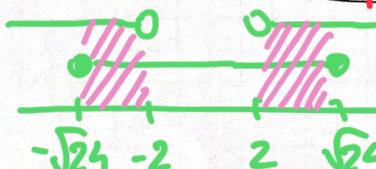
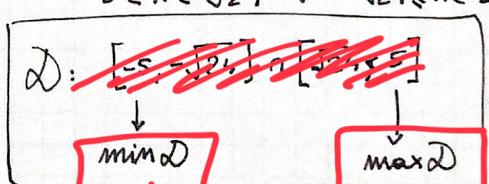
$$x^2 \geq 4$$

$$x_{1,2} = \pm 2$$

dove emm
struttivamente
uguale a zero.
~~ma non serve~~

**MA CHE MINCHIA
DI GRAFICO HO FATTO**

$$-5 < x \leq -\sqrt{24} \quad \vee \quad \sqrt{24} \leq x < 5$$



$$\textcircled{2}: \left[-\sqrt{24}; -2 \right] \cup \left[2, \sqrt{24} \right]$$

$$\textcircled{3} \lim_{x \rightarrow -\infty} \left(\frac{3x-1}{3x+4} \right)^{5x} = \lim_{x \rightarrow -\infty} \left(\frac{3x-1+4-4}{3x+4-4} \right)^{5x} = \lim_{x \rightarrow -\infty} \left(1 + \left(-\frac{5}{3x+4} \right) \right)^{5x}$$

$\overset{5}{\leftarrow}$

$$\lim_{x \rightarrow -\infty} \left[\underbrace{\left(1 + \left(-\frac{1}{-\frac{3x+4}{5}} \right) \right)^{\frac{-3x+4}{5}}}_e \cdot \frac{5}{3x+4} \cdot x \right] = \lim_{x \rightarrow -\infty} \frac{2^{5x}}{3x+4} = \lim_{x \rightarrow -\infty} \frac{2^{5x}}{x(3+\frac{4}{x})} = \boxed{\frac{2^5}{3}}$$

$$\textcircled{4} \lim_{x \rightarrow 0} \frac{\ln(1-2x^2)}{\sqrt{1+x^2} - 1} = \lim_{x \rightarrow 0} \underbrace{\left(\frac{\ln(1-2x^2)}{-2x^2} \right)}_1 \cdot (-2x^2) \cdot \underbrace{\left(\frac{x^2}{(1+x^2)^{\frac{1}{2}-1}} \right)}_{-\frac{1}{2}} \cdot \left(\frac{1}{x^2} \right) = 1 \cdot (-2) \cdot \left(\frac{1}{2} \right) = \boxed{-4}$$

Se fosse
dritto sarebbe
 $\frac{1}{2}$ riscome è
 capovolto è 2