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$$\lim_{x \to +\infty} 3^{\frac{1}{x}} = 1 \qquad \left[3^{\frac{1}{+\infty}} = 3^{0^+} = 1 \right]$$

$\forall \varepsilon > 0 \; \exists \; I_\varepsilon(1)$ e corrispondentemente $\exists \; M > 0$ $I_M(+\infty) \mid \forall \; x \in I_M(+\infty)$ si ha che

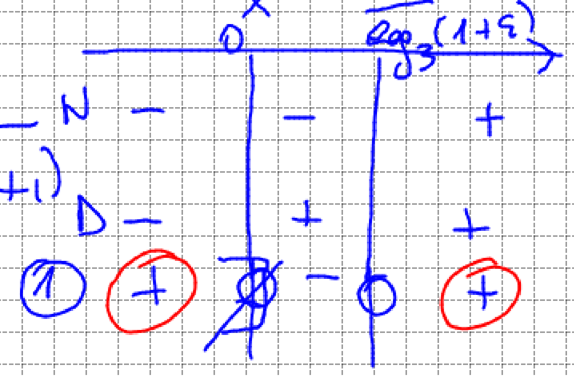
$$\left| 3^{\frac{1}{x}} - 1 \right| < \varepsilon$$

$$\begin{cases} 3^{\frac{1}{x}} - 1 < \varepsilon \\ 3^{\frac{1}{x}} - 1 > -\varepsilon \end{cases} \qquad \begin{cases} 3^{\frac{1}{x}} < \varepsilon + 1 \\ 3^{\frac{1}{x}} > 1 - \varepsilon \end{cases} \qquad \begin{cases} \frac{1}{x} < \log_3(\varepsilon+1) \\ \frac{1}{x} > \log_3(1-\varepsilon) \end{cases}$$

$$\begin{cases} \dfrac{1 - x\log_3(\varepsilon+1)}{x} < 0 \\ \dfrac{1 - x\log_3(1-\varepsilon)}{x} > 0 \end{cases} \qquad \begin{cases} ① \; \dfrac{x\log_3(\varepsilon+1) - 1}{x} > 0 \\ ② \; \dfrac{1 - x\log_3(1-\varepsilon)}{x} > 0 \end{cases}$$

① $N > 0 \qquad x > \dfrac{1}{\log_3(\varepsilon+1)}$

$D > 0 \qquad x > 0$



② $\dfrac{1 - x\log_3(1-\varepsilon)}{x} > 0$

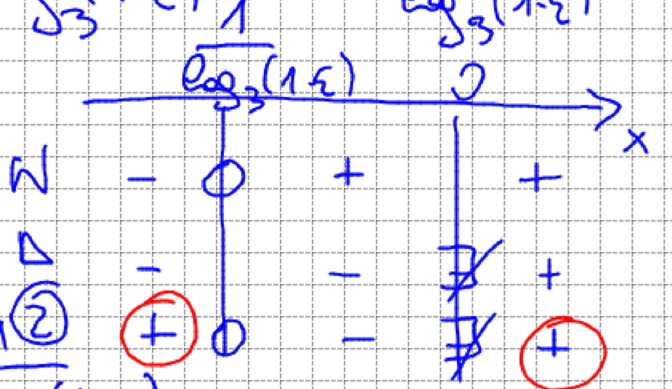
$N) > 0 \qquad 1 - x\log_3(1-\varepsilon) > 0$

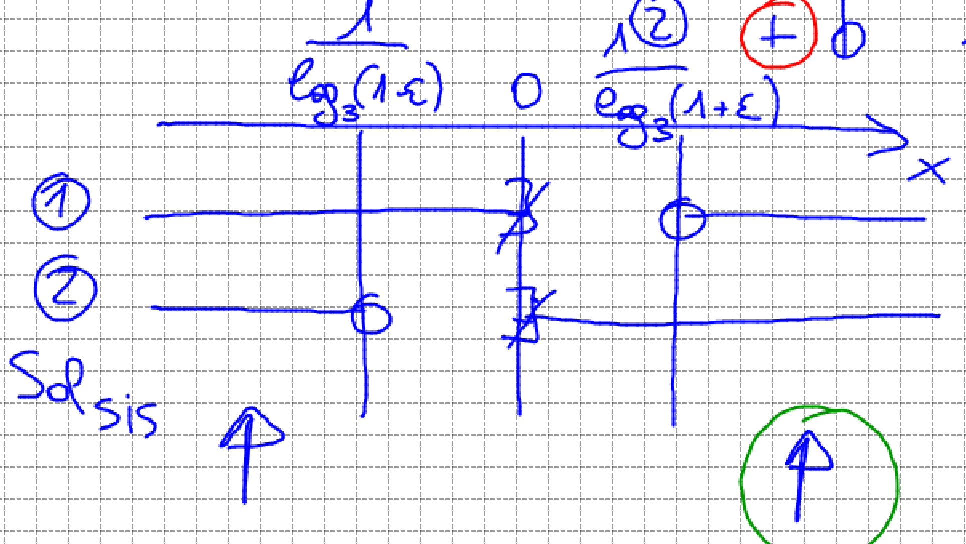
$$\left[-\log_3(1-\varepsilon) \right] x > -1$$

è un valore positivo

$$x > \frac{-1}{-\log_3(1-\varepsilon)} \qquad x > \frac{1}{\log_3(1-\varepsilon)}$$

$D) > 0 \qquad x > 0$





$$\text{Sol}_{sis} = \left(\frac{1}{\log_3(1+\varepsilon)} ; +\infty \right)$$

intorno di $+\infty$