

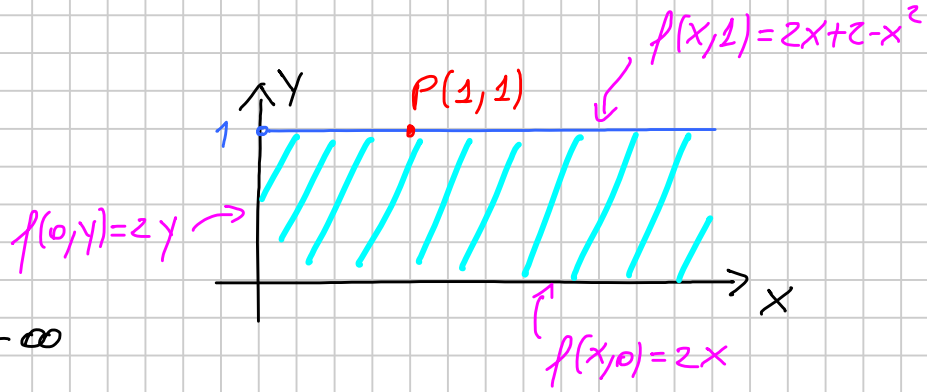
$$f(x,y) = 2x + 2y - x^2 y^2$$

$$A: x \geq 0, 0 \leq y \leq 1$$

SUP. E INF.

$$\lim_{\substack{x \rightarrow +\infty \\ y=0}} f(x,y) = 2x = +\infty$$

$$\lim_{\substack{x \rightarrow +\infty \\ y=1}} f(x,y) = 2x + 2 - x^2 = -\infty$$



$$\leadsto \text{SUP} = +\infty \quad \text{INF} = -\infty$$

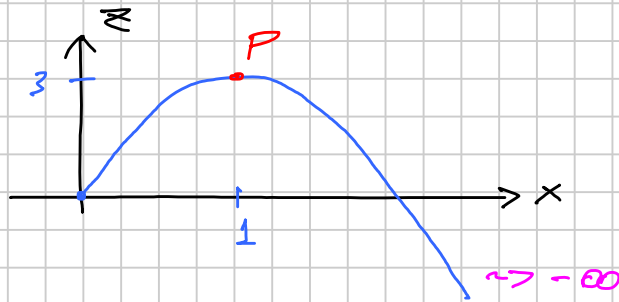
PUNTI STAZIONARI INTERNI

$$\begin{cases} f_x = 2 - 2xy^2 = 0 \\ f_y = 2 - 2x^2y = 0 \end{cases} \quad \begin{cases} xy^2 = 1 \\ x^2y = 1 \end{cases} \leadsto xy^2 = x^2y \quad xy^2 - x^2y = 0$$

$$xy(y-x) = 0 \quad \begin{cases} xy = 0 \leadsto \text{NESSUNA SOLUZIONE} \\ y = x \leadsto x=1, y=1 \in \text{BORDO} \end{cases}$$

BORDO y=1

$$f(x,1) = 2x + 2 - x^2$$



$$f'(x,1) = 2 - 2x = 0 \quad x=1 \quad f(1,1) = 3$$

f(x,y) su tutto R^2  $\leadsto (1,1)$  P.TO DI SELLA

$$H = \begin{pmatrix} -2y^2 & -5xy \\ -5xy & -2x^2 \end{pmatrix} \quad H_{(1,1)} = \begin{pmatrix} -2 & -5 \\ -5 & -2 \end{pmatrix} \quad \text{DET}(H) = 5 - 16 = -12$$