

$\alpha < 0 \quad \beta = -\alpha > 0$

$f(x,y) = \frac{3xy}{x^2+y^2} (\text{sen}(x^2+y^2))^\alpha = \frac{3xy}{x^2+y^2} \frac{1}{(\text{sen}(x^2+y^2))^\beta}$

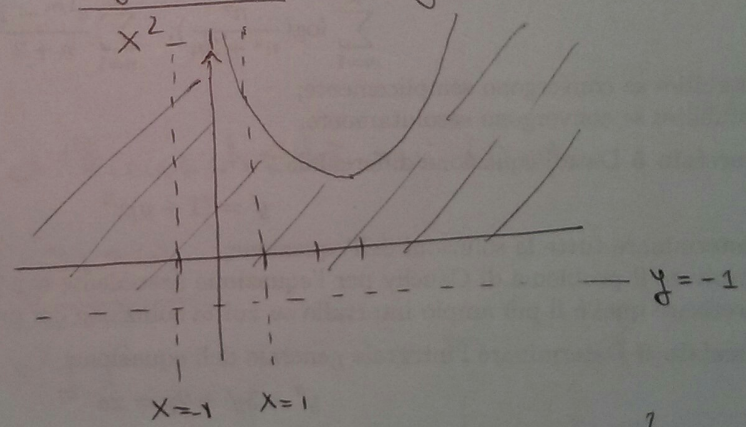
$f(x,x) = \frac{3}{2} \frac{1}{(\text{sen}(2x^2))^\beta} \xrightarrow{x \rightarrow 0} +\infty$

$f(x,-x) = -\frac{3}{2} \frac{1}{(\text{sen}(2x^2))^\beta} \xrightarrow{x \rightarrow 0} -\infty$

Il limite non esiste $\Rightarrow f$ non è continua in $(0,0)$.

Es. 3 $f(x,y) = \frac{\lg(y+1)}{x^2} \sqrt{2-y+(x-3)^2}$

$\begin{cases} y > -1 \\ x \neq \pm 1 \\ y \leq (x-3)^2 + 2 \end{cases}$



$E = \{(x,y) \in \mathbb{R}^2 : -1 < y \leq (x-3)^2 + 2 \quad x \neq \pm 1\}$

E è un insieme né aperto né chiuso, illimitato, non connesso.