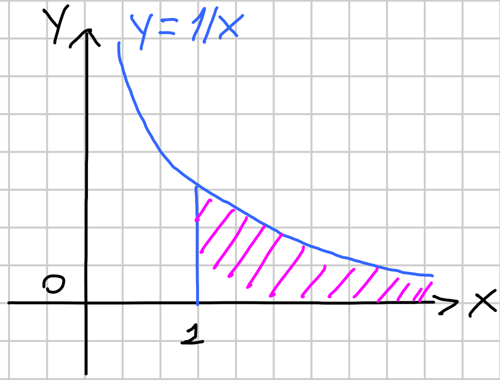
BY GIMUSI 18/10/2015

stabilire se le funzioni x^2+y^2-xy e e^x-y, ammettono limite per x^2+y^2-->+inf nel dominio D1=((x,y) app. ad R^2: x=>1, 0<=y<=1/x) ed al dominio D2=((x,y)app. ad R^2: x^1/2<=y<=x).

$$\begin{cases} f(x,y) = x^2 + y^2 - xy \\ g(x,y) = e^{x-y} \end{cases}$$

$$\begin{cases} D_1: \begin{cases} x \geq 1 \\ 0 \leq y \leq 1/x \end{cases} \\ D_2: \sqrt{x} \leq y \leq x \end{cases}$$

DOMINIO D_1: $\begin{cases} x \geq 1 \\ 0 \leq y \leq 1/x \end{cases}$



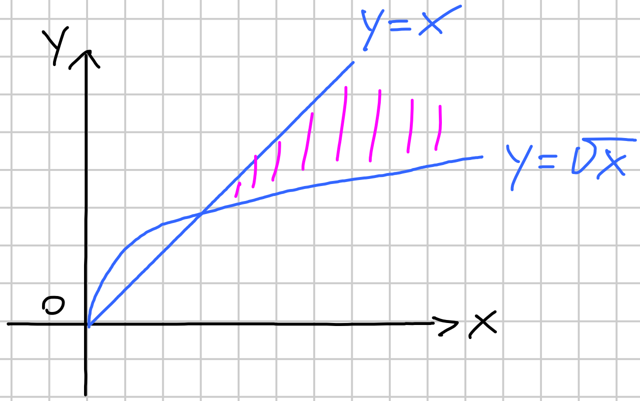
$$\lim_{x^2+y^2 \to +\infty} x^2 + y^2 - xy = +\infty$$

$$x^2 + y^2 - xy \geq \underbrace{x^2}_{\to +\infty} + \underbrace{0^2}_{\text{MIN. POSS.}} - \underbrace{1}_{\text{MAX POSS.}}$$

$$\lim_{x^2+y^2 \to +\infty} e^{x-y} = +\infty$$

$$e^{\overbrace{x-1/x}^{\to +\infty}} \leq e^{x-y} \leq e^{\overbrace{x}^{\to +\infty}}$$

DOMINIO $D_2 : \sqrt{x} \le y \le x$



$$\lim_{x^2+y^2 \to +\infty} x^2 + y^2 - xy = +\infty$$

$$x^2 + y^2 - xy \geq \overbrace{x^2 + \underbrace{x}_{\text{MIN. POSS.}} - \overbrace{x^2}^{\text{MAX POSS.}}}^{\to +\infty}$$

$$\lim_{x^2+y^2 \to +\infty} e^{x-y} = \text{N.E.}$$

$$\lim_{\substack{x^2+y^2 \to +\infty \\ y=x}} e^{0} = 1 \neq \lim_{\substack{x^2+y^2 \to +\infty \\ y=\sqrt{x}}} e^{x-\sqrt{x}} = +\infty$$