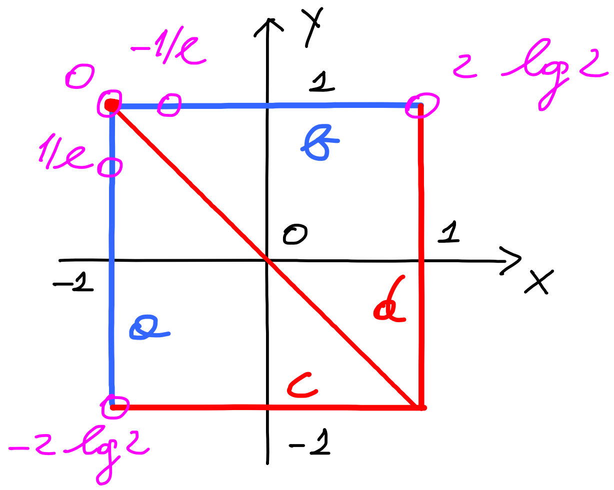
BY GIMUSI 22/10/17

E={(x+y)log|x+y|} x=[-1,1) y=(-1,1] trovare max min, inf e sup

$$\begin{cases} (x+y)\log|x+y| & x+y \neq 0 \\ x=[-1,1) \quad y=(-1,1] \end{cases}$$



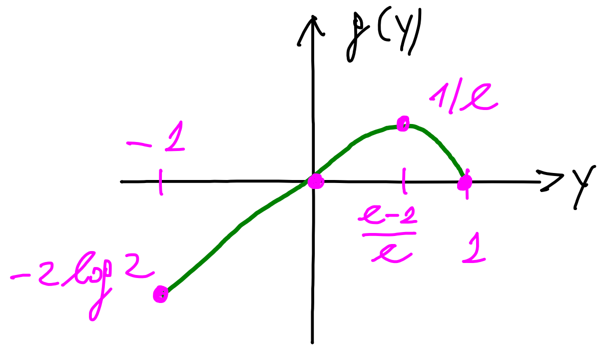
STUDIO SUL BORDO

a) $x=-1$

$$g(y) = (y-1)\log|\underbrace{y-1}_{=1-y}| \qquad y \in (-1,1]$$

$$g'(y) = \log(1-y) + 1 = 0 \quad \log(1-y) = \log 1/e \quad y = \frac{e-1}{e}$$

$$g(-1) = -2\log 2 \;,\; g\left(\frac{e-1}{e}\right) = \frac{1}{e} \;,\; g(y) \to 0 \quad y \to 1^-$$



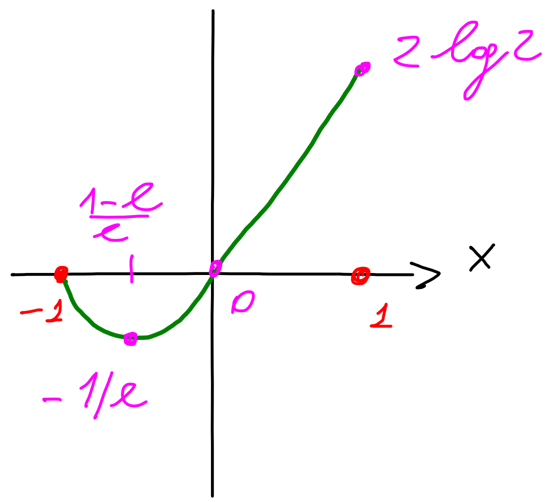
b) $y=1$

$$s(x) = (1+x)\log|\underbrace{1+x}_{=1+x}|$$

$$s'(x) = \log(1+x) + 1 = 0$$

$$1+x = \frac{1}{e} \qquad x = \frac{1-e}{e}$$

$$s\left(\frac{1-e}{e}\right) = -\frac{1}{e}$$



⟶ PER SIMMETRIA NELL'INTORNO DI c E d IL COMP.
È ANALOGO

PUNTI INTERNI

$\underline{x+y>0}$ $\quad f(x,y) = (x+y)\log(x+y)$

$$\begin{cases} f_x = \log(x+y)+1=0 \\ f_y = \log(x+y)+1=0 \end{cases} \rightsquigarrow \quad x+y=\frac{1}{e} \quad y=-x+\frac{1}{e}$$

$$f\left(x,-x+\frac{1}{e}\right) = -1/e$$

$\underline{x+y<0}$ $\quad f(x,y) = (x+y)\log[-(x+y)]$

$$\begin{cases} f_x = \log[-(x+y)]+1=0 \\ f_y = \log[-(x+y)]+1=0 \end{cases} \rightsquigarrow \quad x+y=-\frac{1}{e} \quad y=-x-\frac{1}{e}$$

$$f\left(x,-x-\frac{1}{e}\right) = 1/e$$

$$\rightsquigarrow \begin{cases} INF(f) = -2\log 2 \\ SUP(f) = 2\log 2 \end{cases}$$