RICEVIMENTO STUDENTI AM1

R. 3

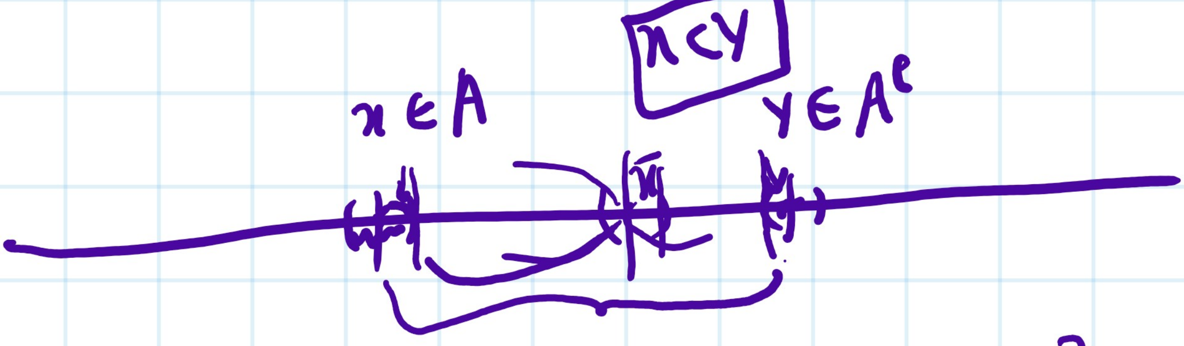
18-10-2022

$$\partial A = \partial(A^c)$$

$\forall I$ int. di x:
$$\begin{cases} I \cap A \neq \emptyset \\ I \cap A^c \neq \emptyset \end{cases}$$

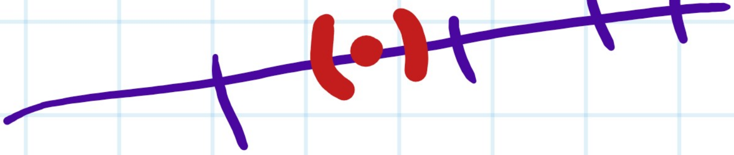
$\forall I$ int. di x:
$$\begin{cases} I \cap A^c \neq \emptyset \\ I \cap \underbrace{(A^c)^c}_{=A} \neq \emptyset \end{cases}$$

$$\partial A = \emptyset \Rightarrow \emptyset \,,\ \mathbb{R}$$

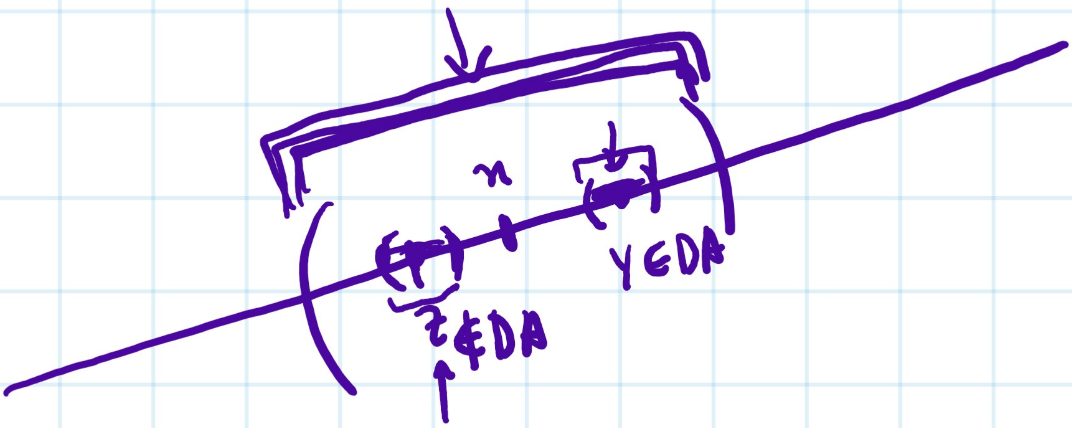


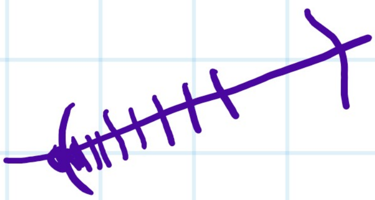
$$\bar{x} = \inf(B) \qquad B = \{ t \in (x,y) \mid t \in A^c \}$$

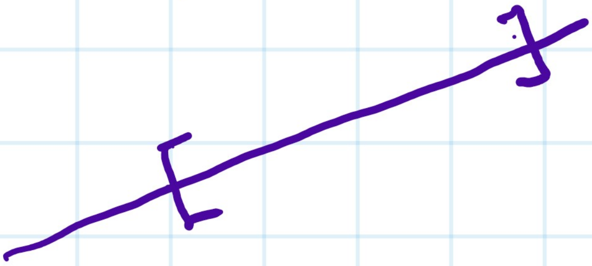
$\partial \mathbb{Q} = \mathbb{R}$



$\underset{\overset{\cup}{x}}{\partial(DA)} \subset \partial A$





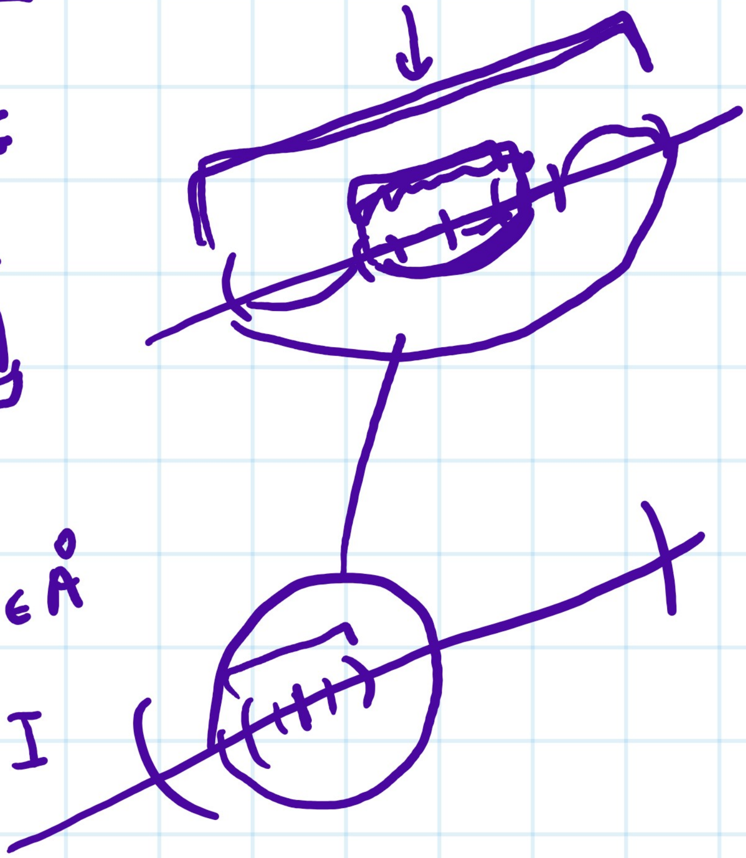


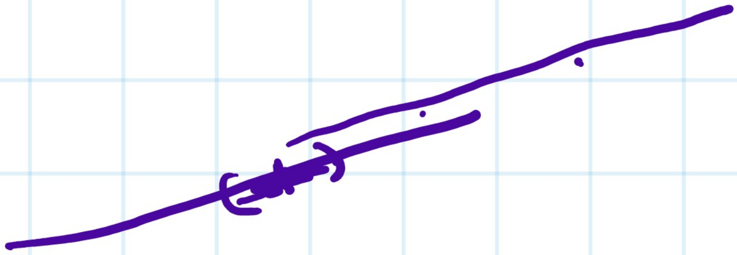
∂A è chiuso

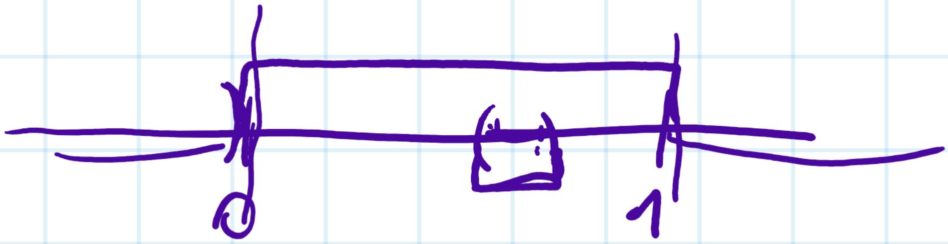
$(\partial A)^c$ è aperto

$\mathring{A} \cup \mathrm{Est}(A)$

$x \in \mathring{A}$

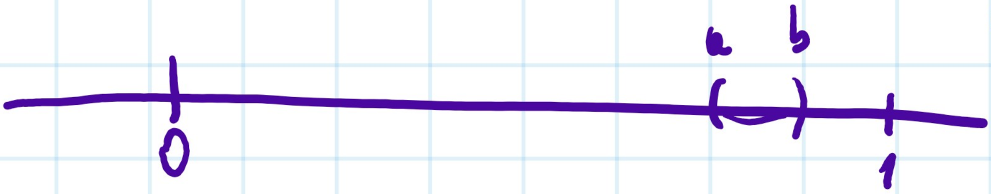






$0<a<b<1$

$\delta = b-a$



1) PRENDO $k \in \mathbb{N}$ t.c. $\boxed{\sqrt{k^2+1}-\lfloor\sqrt{k^2+1}\rfloor} < \delta$?

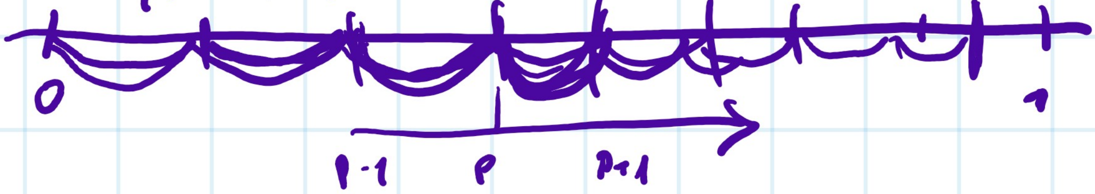
$$\sqrt{k^2}<\sqrt{k^2+1}<\sqrt{(k+1)^2}$$

$$k < \sqrt{k^2+1} < k+1$$

$$\frac{\sqrt{k^2+1}-k}{1} = \frac{1}{\sqrt{k^2+1}+k} < \frac{1}{k} < \delta$$

$\sqrt{k^2} \vee \sqrt{(k+1)^2}$

k $\{\sqrt{k^2+1}\}$ $\{\sqrt{k^2+2}\}$ $\{\sqrt{k^2+2k}\}$ $\{\sqrt{k^2+2k+1}\}$ $(k+1)^2$



$$\underbrace{\{\sqrt{k^2+p+1}\} - \{\sqrt{k^2+p}\}} < \underbrace{\{\sqrt{k^2+p}\} - \{\sqrt{k^2+p-1}\}}$$

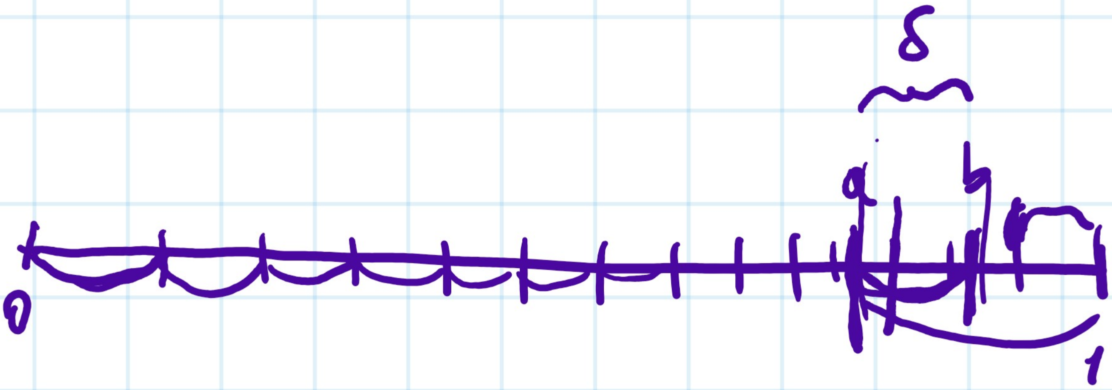
$$\left(\sqrt{k^2+p+1} - \cancel{k}\right) - \left(\sqrt{k^2+p} - \cancel{k}\right)$$

$$\sqrt{k^2+p+1} - \sqrt{k^2+p}$$

$$\frac{\sqrt{k^2+p+1} - \sqrt{k^2+p}}{1} < \frac{\sqrt{k^2+p} - \sqrt{k^2+p-1}}{1}$$

$$\frac{1}{\sqrt{k^2+p+1} + \sqrt{k^2+p}} < \frac{1}{\sqrt{k^2+p} + \sqrt{k^2+p-1}}$$

$$(k+1) - \sqrt{k^2+2k}$$



$$\min(B) \quad B = \{\sqrt{k^2+p} \mid p \in \{0, \dots, 2k\}, \sqrt{k^2+p} > a\} \neq \emptyset$$

$$\{\sqrt{k^2+p-1}\} \le a < \{\sqrt{\boxed{k^2+p}}\} \overset{?}{<} b$$