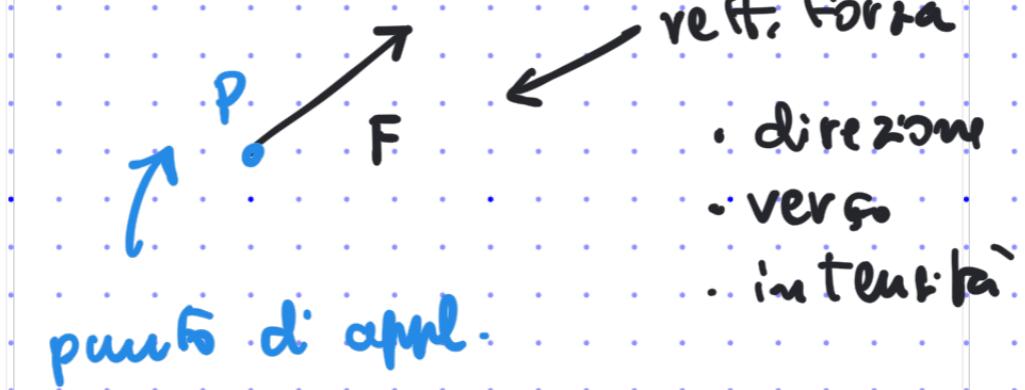
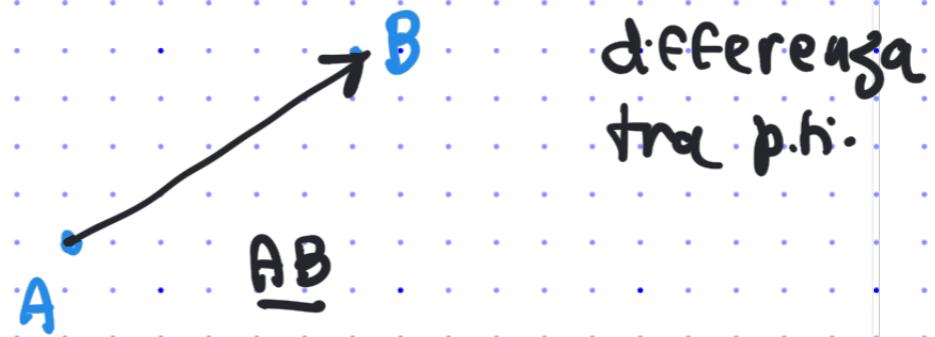


Vettori

Esempio : Forza

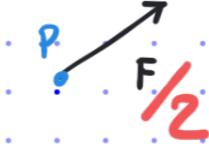
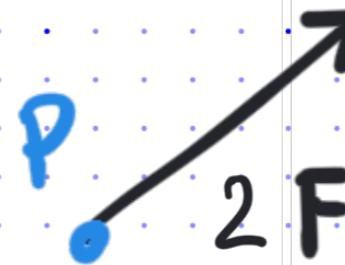


Esempio :



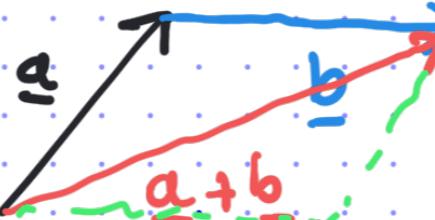
Operazioni su Vettori

- Moltip. scalare



\vec{v} vettore
 α scalare $\rightarrow \alpha \vec{v}$

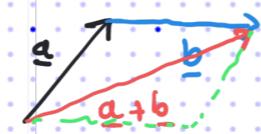
- Addizione



legge del parallelogramma

Operazioni su vettori

• Addizione



legge del parallelogramma

Proprietà:

• commutativa

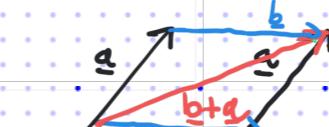
$$\underline{a} + \underline{b} = \underline{b} + \underline{a}$$

• associativa

$$(\underline{a} + \underline{b}) + \underline{c} = \underline{a} + (\underline{b} + \underline{c})$$

• distributiva

$$\alpha \underline{a} + \alpha \underline{b} = \alpha (\underline{a} + \underline{b})$$



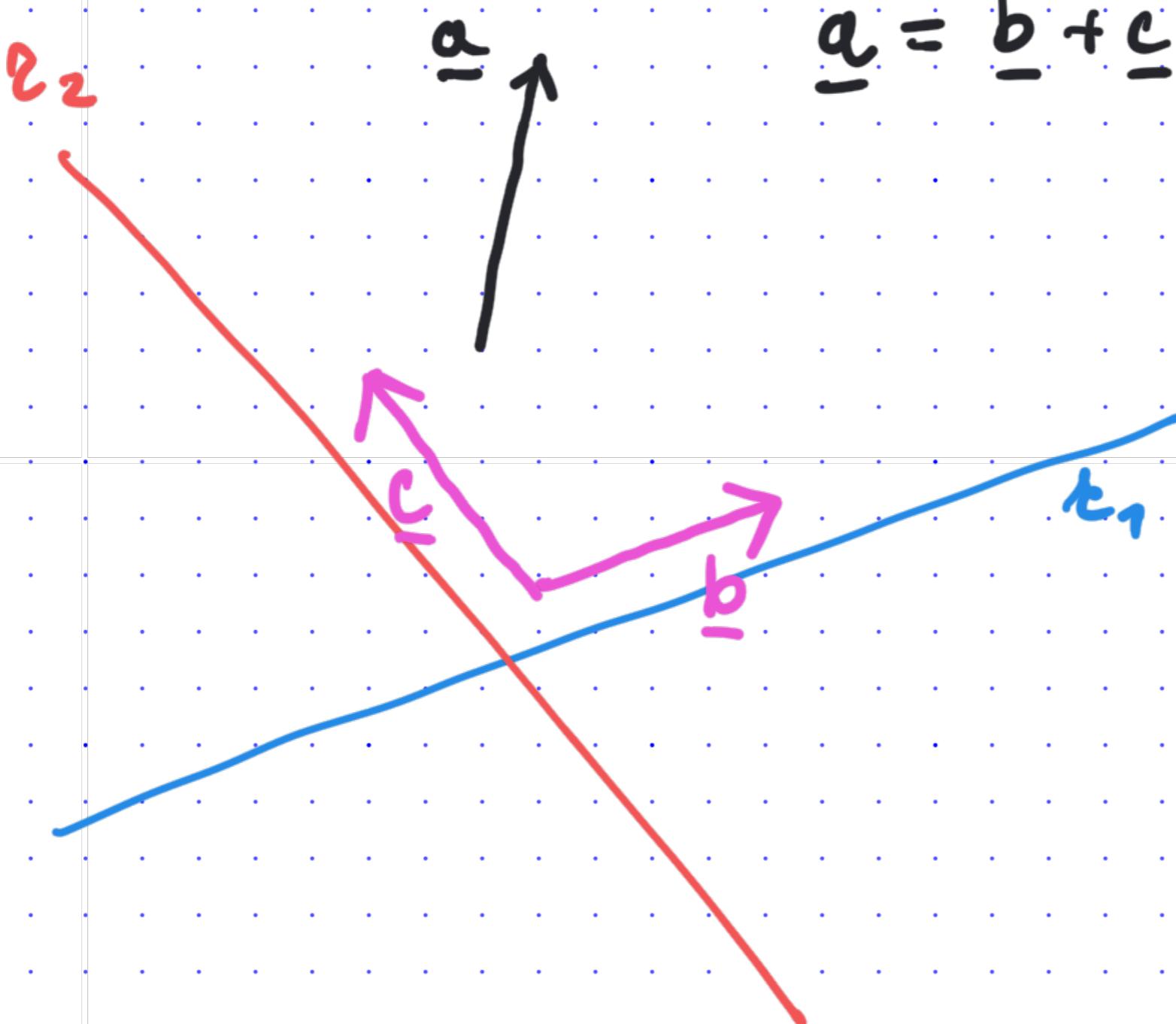
$$(\underline{a} + \underline{b}) + \underline{c} = \underline{a} + (\underline{b} + \underline{c})$$



$$\alpha \underline{a} + \alpha \underline{b} = \alpha (\underline{a} + \underline{b})$$

SCOMPOSIZIONE DI UN VETTORE

non parallele

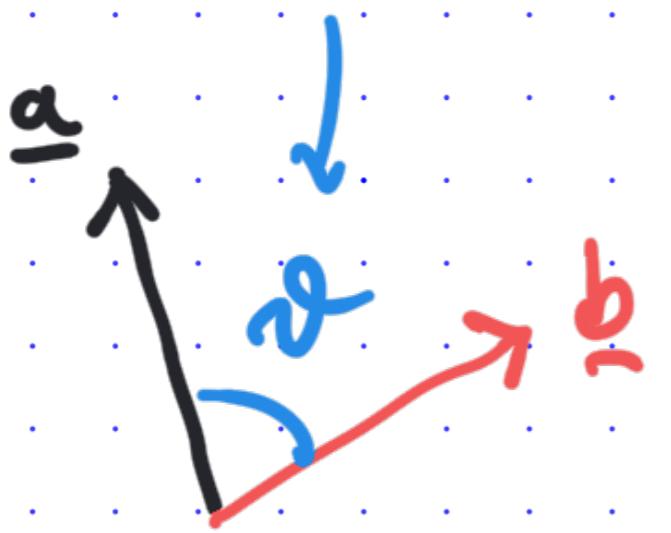


$$\underline{b} \parallel t_1$$

$$\underline{c} \parallel t_2$$

PRODOTTO SCALARTE fra vettori.

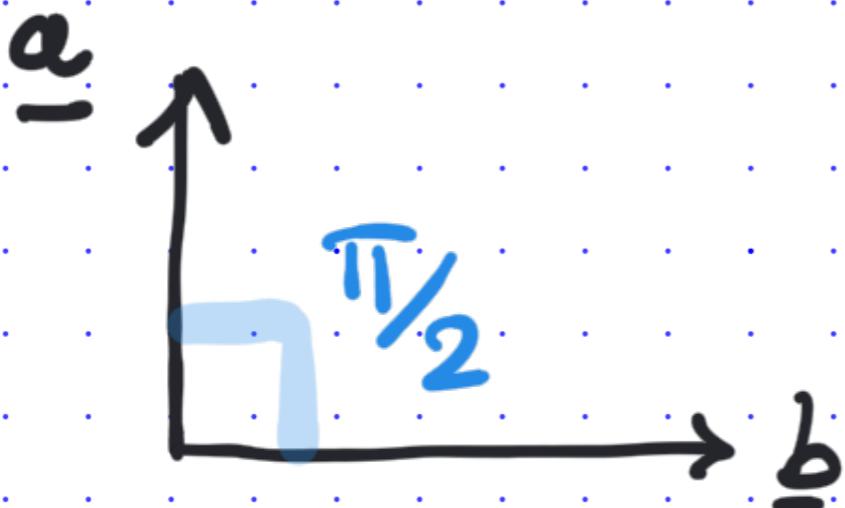
angolo acuto



$$\underline{a} \cdot \underline{b} = \|\underline{a}\| \|\underline{b}\| \cos \vartheta$$

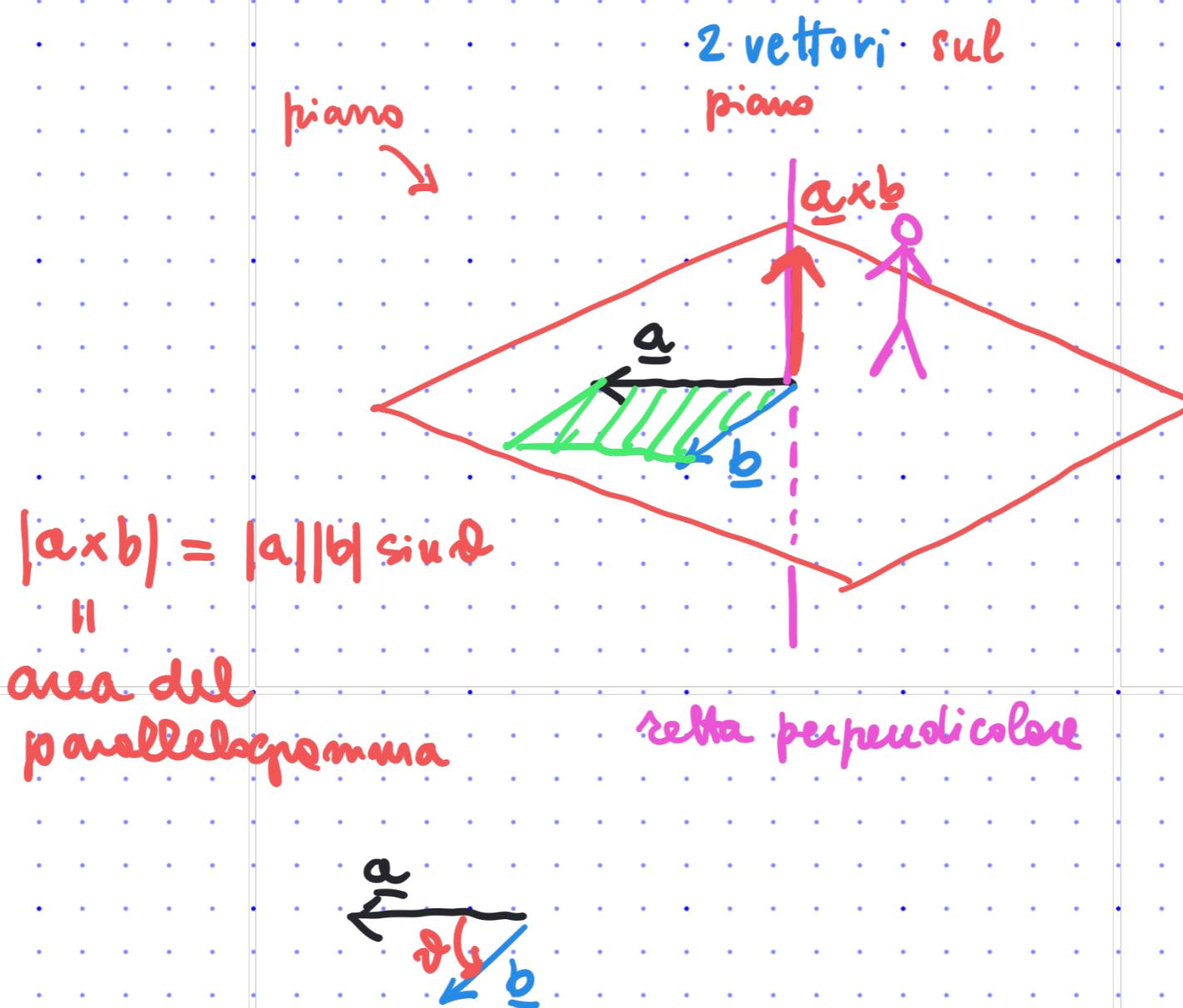
$$\underline{a} \cdot \underline{b} = 0 \quad \text{se} \quad \underline{a} = \underline{0} \quad \text{oppure} \quad \underline{b} = \underline{0}, \quad \text{oppure}$$

$$\underline{a} \perp \underline{b}$$



$$\cos \frac{\pi}{2} = 0$$

PRODOTTO VETTORIALE

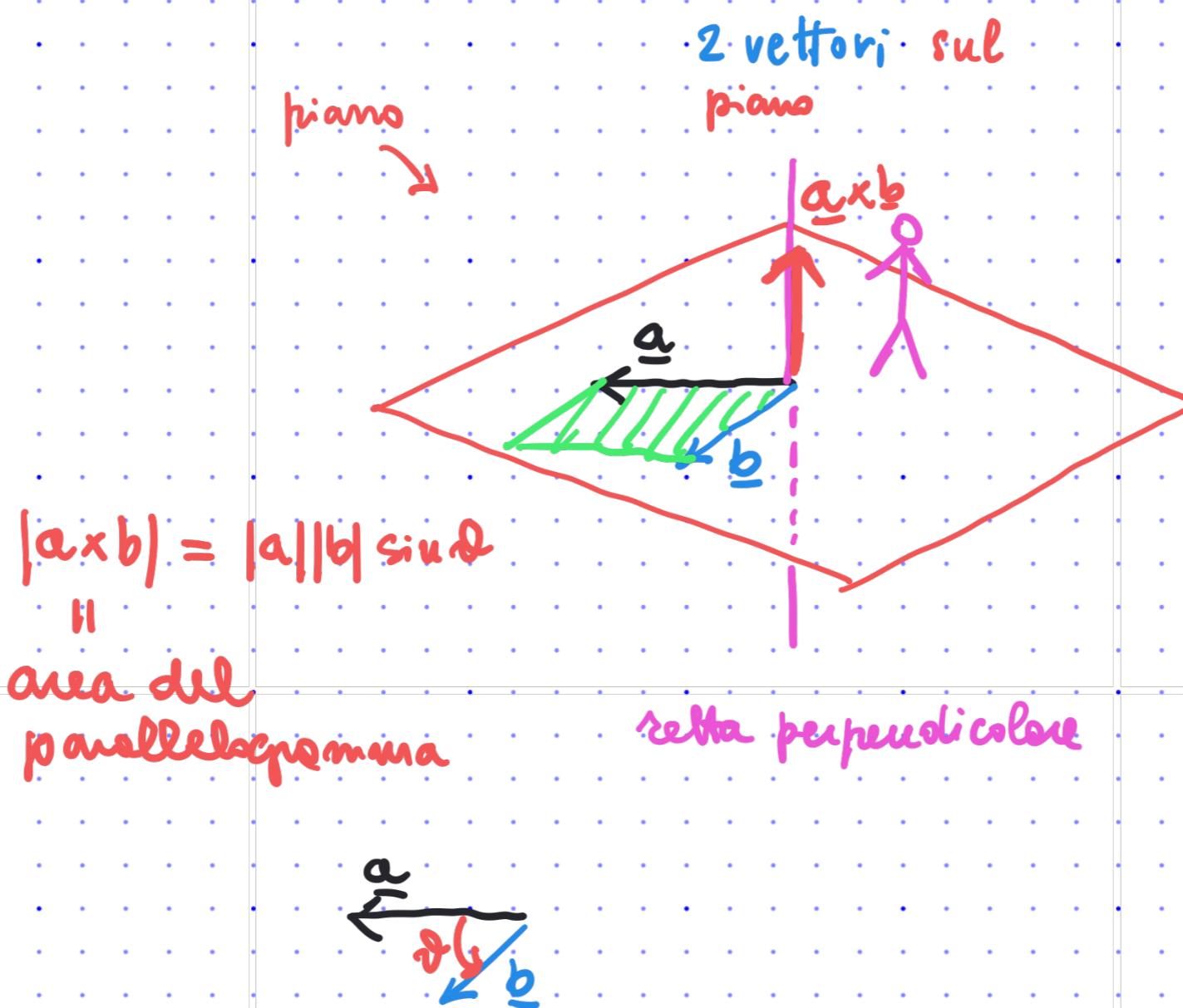


facciamo ruotare il vettore \underline{a} in modo che si sovrapponga a \underline{b}

spazziamo il minore angolo possibile..

disponiamo un off. in modo che uno veda \underline{a} ruotare in senso antiorario

PRODOTTO VETTORIALE



facciamo ruotare il vettore \underline{a} in modo che si sovrapponga a \underline{b}

spazziamo il minore angolo possibile..

disponiamo un off. in modo che uno veda \underline{a} ruotare in senso antiorario

RAPPRESENTAZIONE CARTESIANA