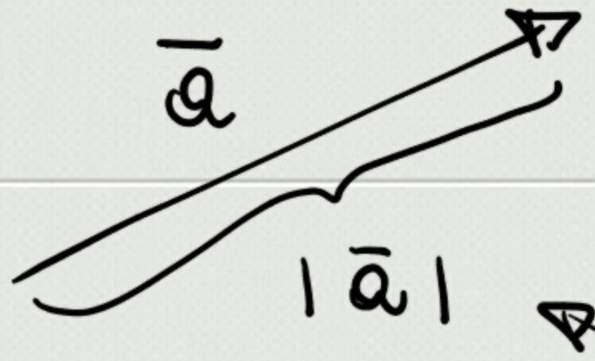
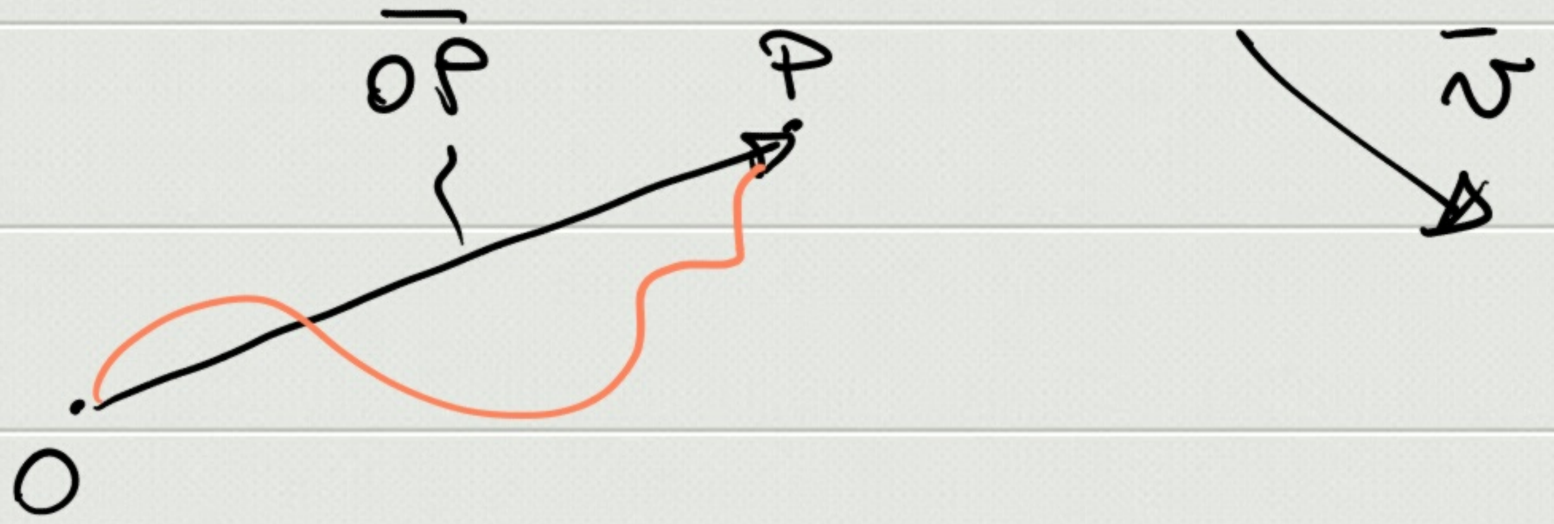
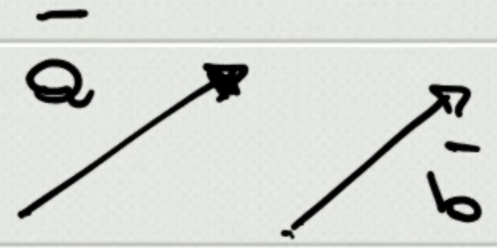
Grandezze
- scalari : numero
- vettoriali :
  - numero
  - direzione
  - verso

$\vec{a}$, $\underline{a}$ ...





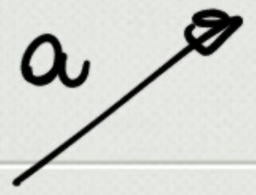


$\bar{a} = \bar{b}$ ("equipollenti")

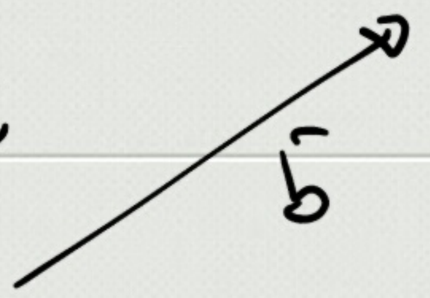
$\bar{a}$, m (scalare) $\Rightarrow$ $\boxed{\bar{b} = m\bar{a}}$

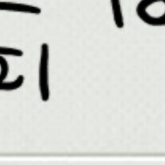
$\bar{b}$: $|\bar{b}| = |m\bar{a}| = |m||\bar{a}|$

$m \gtrless 0$ $\qquad$ $m < 0 \Rightarrow \bar{b}$ verso opposto $\bar{a}$



$m = 2 \qquad \bar{b} = m\bar{a} = 2\bar{a}$



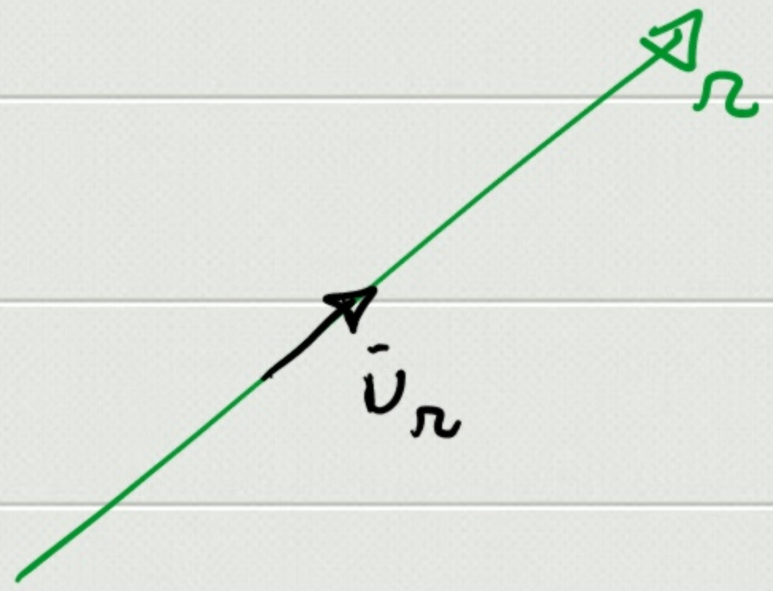
$m = -\frac{1}{2}$ 

$\bar{b} = -\bar{a}$: $m = -1$ (vettore opposto)

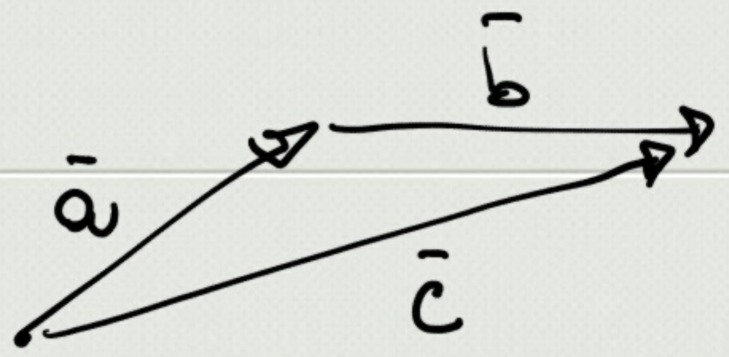
$m = \frac{1}{|\bar{a}|} \Rightarrow \bar{b} = m\bar{a} = \frac{1}{|\bar{a}|}\bar{a}$

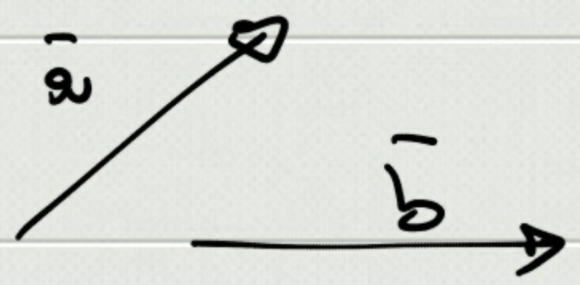
$|\bar{b}| = \frac{1}{|\bar{a}|}|\bar{a}| = 1$

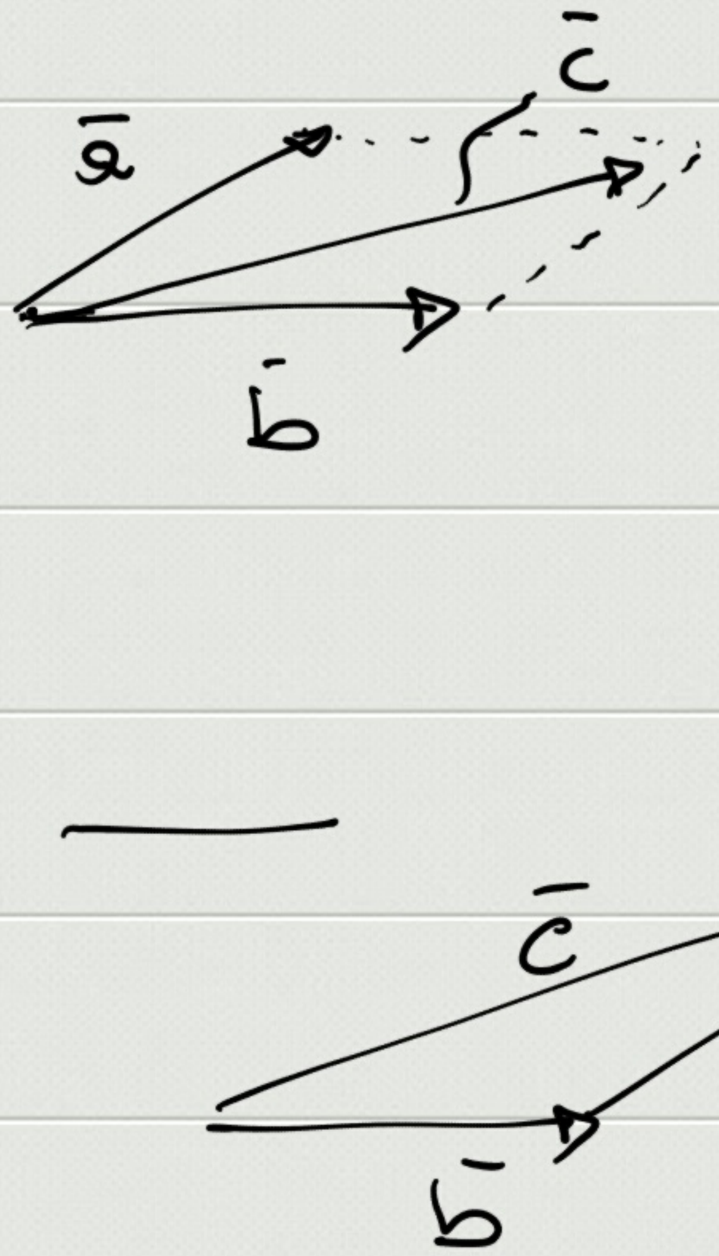
Versore : vettore di modulo unitario : $\bar{v}$



- $\bar{c} = \bar{a} + \bar{b}$



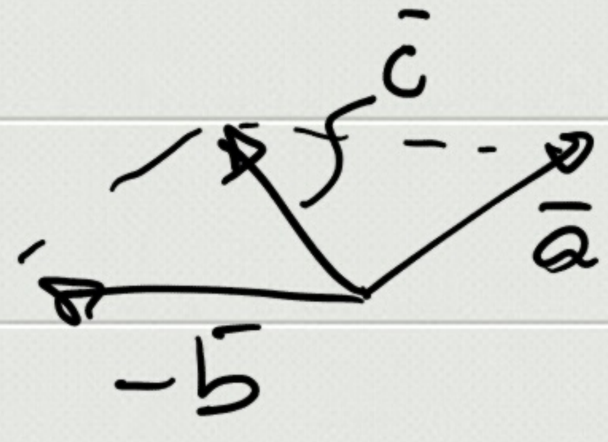


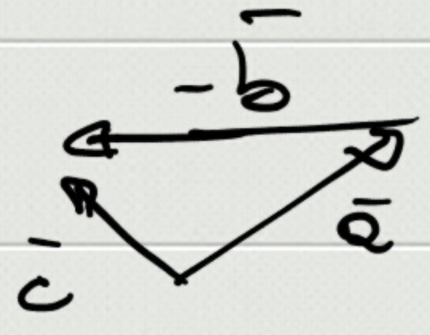


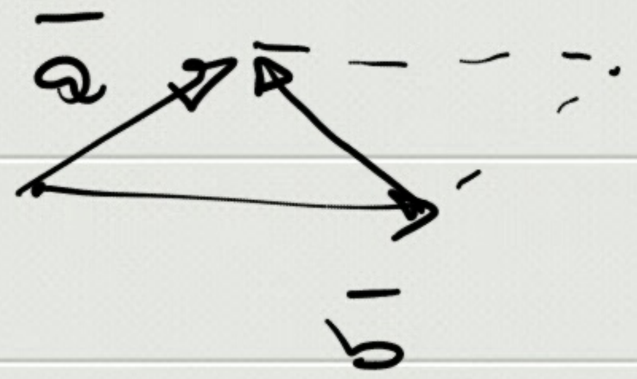
~~$c = a + b$~~

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

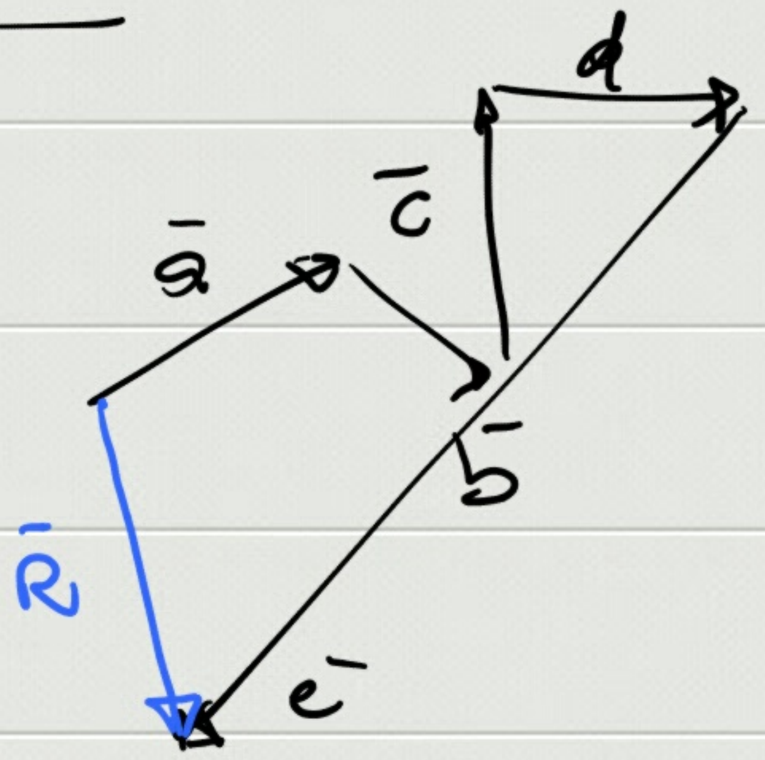
$\bar{c} = \bar{a} - \bar{b} = \bar{a} + (-\bar{b})$







$$\bar{R} = \bar{a} + \bar{b} + \bar{c} + \bar{d}$$



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

$$\bar{a}_1 \parallel \bar{a}_2 \parallel \bar{a}_3 \parallel \dots$$

$$\bar{a}_1 + \bar{a}_2 = |\bar{a}_1| \bar{u}_a + |\bar{a}_2| \bar{u}_a = (|\bar{a}_1| + |\bar{a}_2|) \bar{u}_a$$

$$\sum_i \bar{a}_i = \left(\sum_i |\bar{a}_i|\right) \bar{u}_a$$