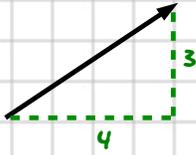


## DEFINIZIONI

DATE  
LE COMPONENTI  
RICAVA  
MODULO E ANGOLO



$$a_x = 4$$

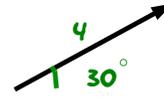
$$a_y = 3$$

segue

$$\text{Modulo} = 5$$

$$\text{Angolo} = \tan^{-1}(3/4) = 36,8^\circ$$

DATI  
MODULO E ANGOLO  
RICAVA  
LE COMPONENTI



$$\text{Modulo} = 4$$

$$\text{Angolo} = 30^\circ$$

segue

$$a_x = a \cos(30) = 3,46$$

$$a_y = a \sin(30) = 2$$

## DEFINIZIONI

DATE  
LE COMPONENTI  
RICAVA  
MODULO E ANGOLO



$$a_x = 2$$

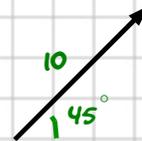
$$a_y = -1$$

segue

$$\text{Modulo} =$$

$$\text{Angolo} =$$

DATI  
MODULO E ANGOLO  
RICAVA  
LE COMPONENTI



$$\text{Modulo} = 10$$

$$\text{Angolo} = 45^\circ$$

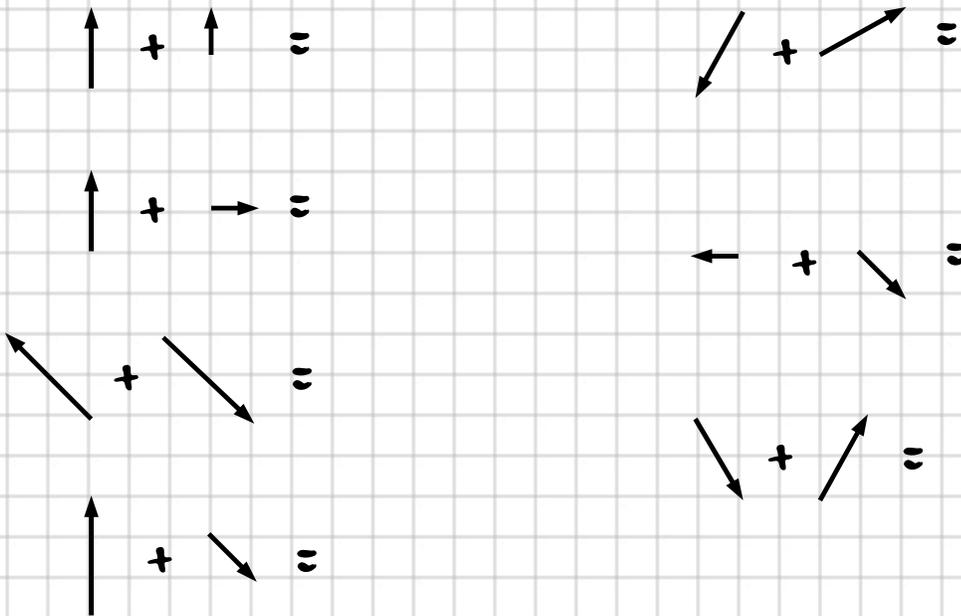
segue

$$a_x =$$

$$a_y =$$

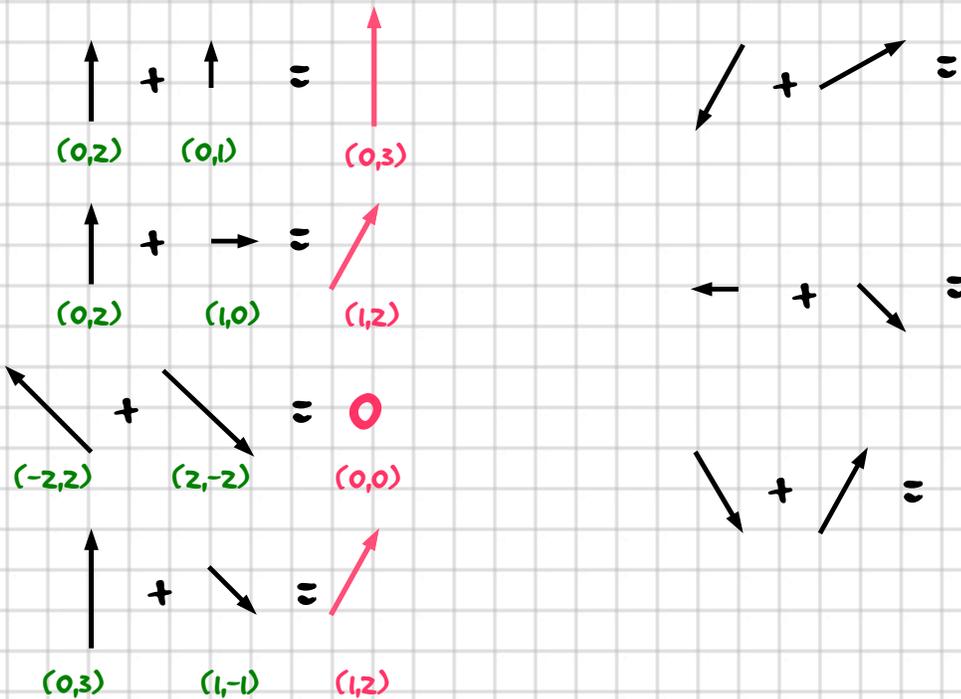
# SOMME

[PhET Vector Addition](#)



# SOMME

SCRIVILE COMPONENTI



# SOMME

SCRIVI I MODULI

$$2 \uparrow + 1 \uparrow = \uparrow$$

$$2 \uparrow + 1 \rightarrow = \nearrow$$

$$2\sqrt{2} \swarrow + 2\sqrt{2} \searrow = 0$$

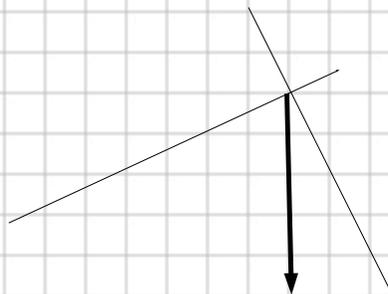
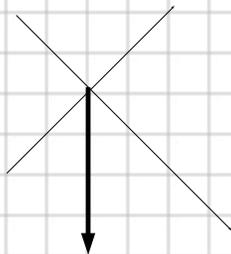
$$3 \uparrow + \sqrt{2} \searrow = \sqrt{5} \nearrow$$

$$\swarrow + \nearrow = \searrow$$

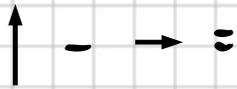
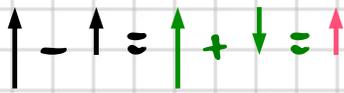
$$\leftarrow + \searrow = \downarrow$$

$$\swarrow + \nearrow = \rightarrow$$

# SCOMPOSIZIONE LUNGO DIREZIONI SCELTE

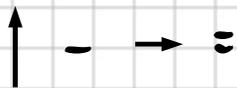


# SOTTRAZIONI



# SOTTRAZIONI

SCRIVILE COMPONENTI



# PRODOTTI per SCALARE

$$2 \cdot \uparrow = \uparrow$$

$$-1 \cdot \nearrow =$$

$$-3 \cdot \rightarrow =$$

$$3 \cdot \searrow =$$

$$\frac{1}{2} \cdot \searrow =$$

$$0 \cdot \nearrow =$$

$$-2 \cdot \searrow =$$

# PRODOTTI per SCALARE

SCRIVILE COMPONENTI

$$2 \cdot \uparrow =$$

$$-1 \cdot \nearrow =$$

$$-3 \cdot \rightarrow =$$

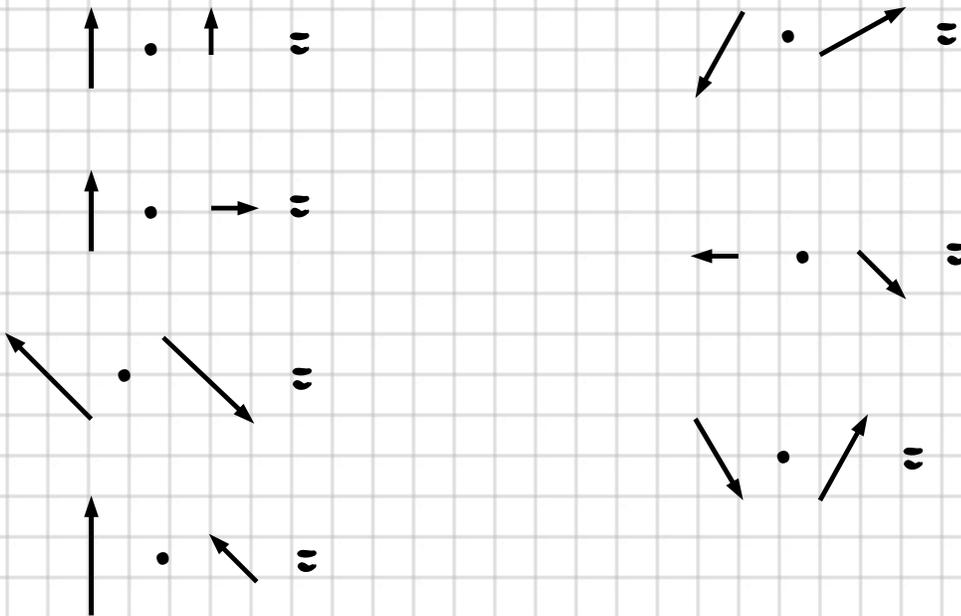
$$3 \cdot \searrow =$$

$$\frac{1}{2} \cdot \searrow =$$

$$0 \cdot \nearrow =$$

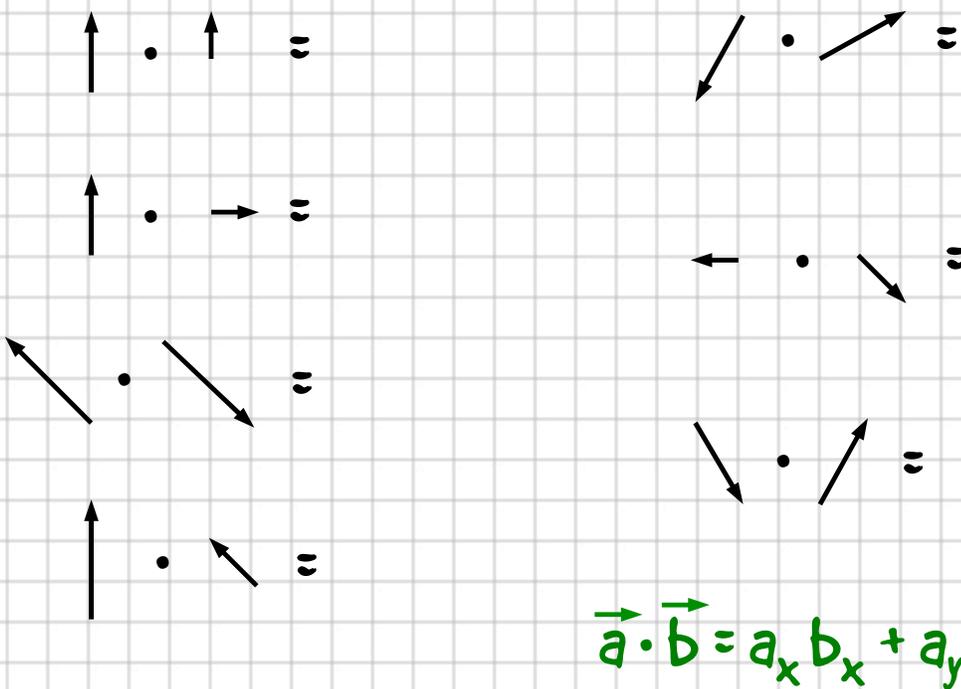
$$-2 \cdot \searrow =$$

# PRODOTTI SCALARI

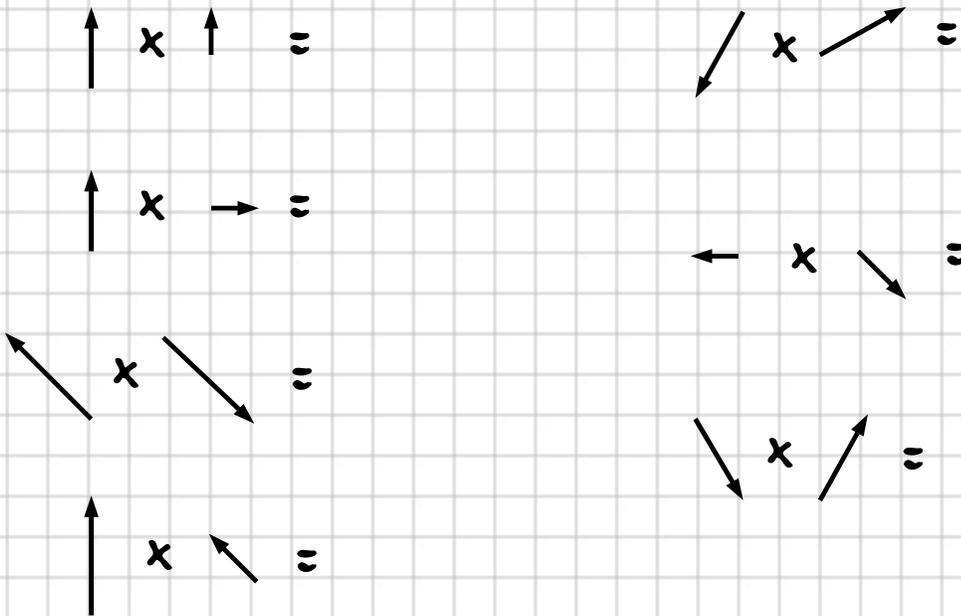


# PRODOTTI SCALARI

SCRIVILE COMPONENTI

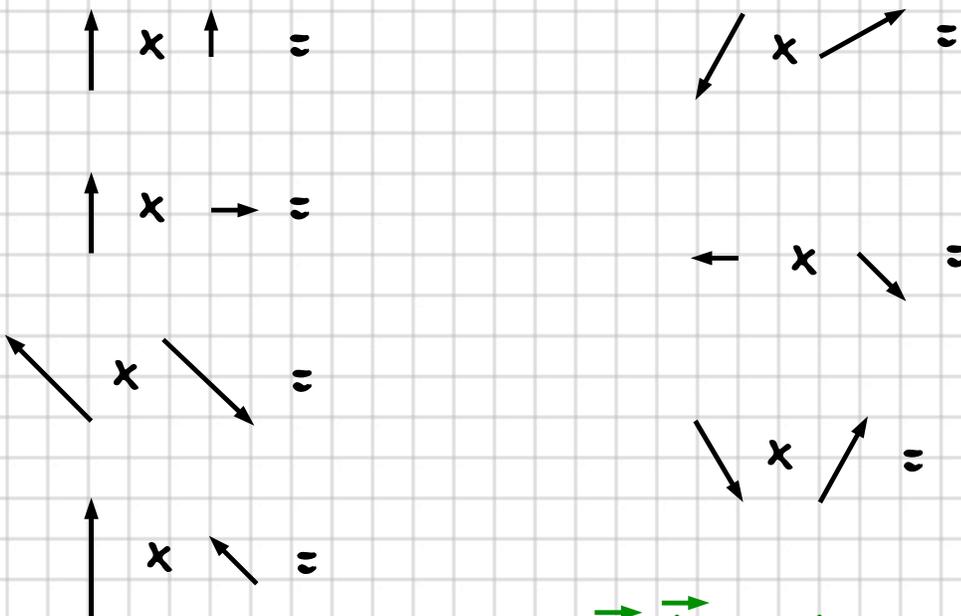


# PRODOTTI VETTORIALI



# PRODOTTI VETTORIALI

SCRIVILE COMPONENTI



$$\vec{a} \times \vec{b} = a_x b_y - a_y b_x$$

NEGATIVO  
ENTRANTE