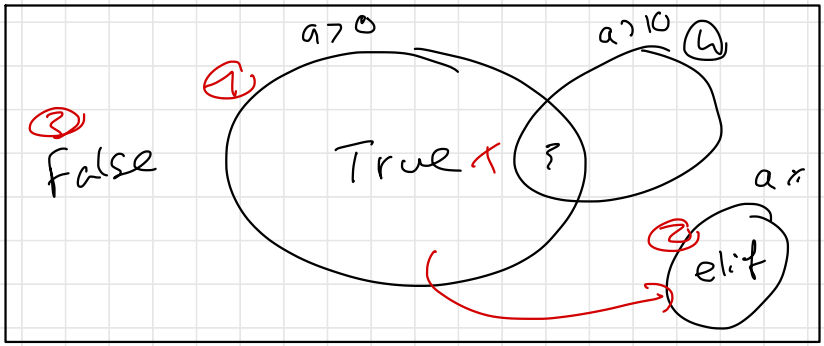
a = 20



if ... :
...

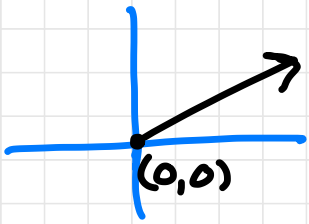
elif :
...

else :
...

Vecteurs :

Physics

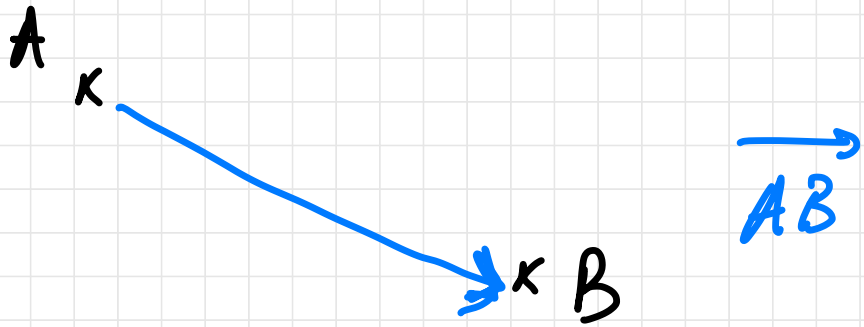
Math

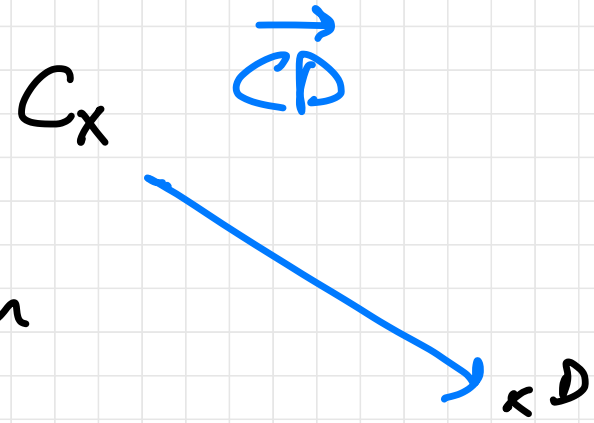


CS

$\begin{pmatrix} \text{name} \\ \text{age} \end{pmatrix}$

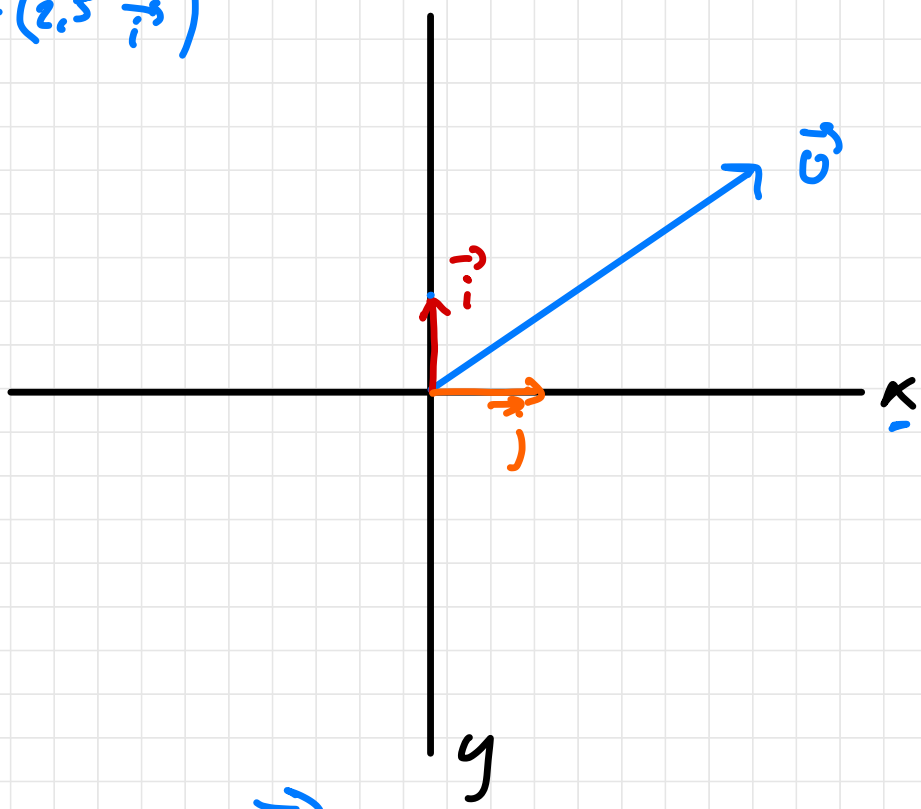
$\overrightarrow{AB} = \overrightarrow{CD} = \vec{v}(a, 0, h)$



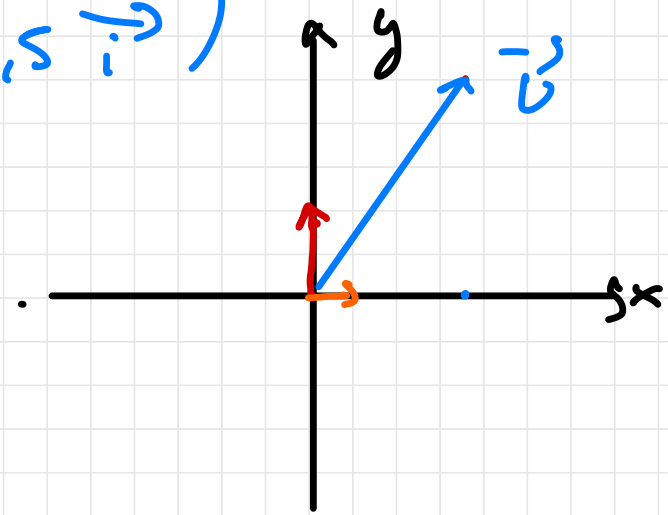


- direction
- orientation
- lenght, norm

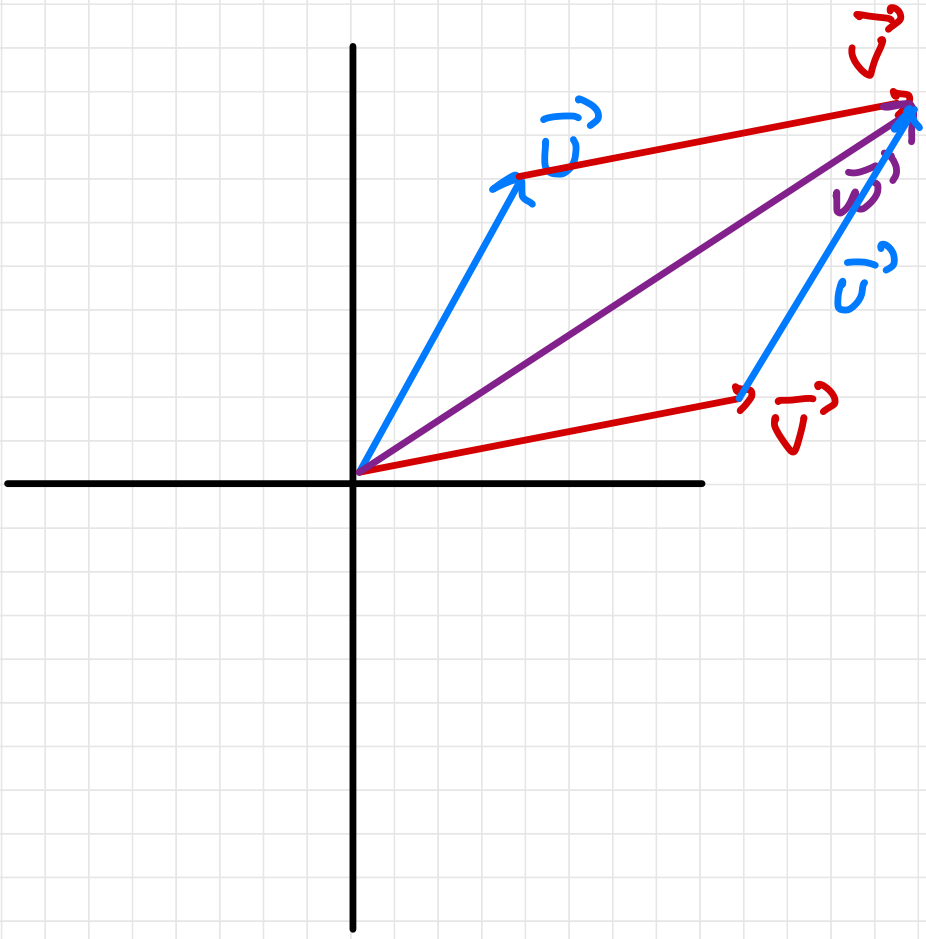
$\vec{v} = \begin{pmatrix} 3,5 \cdot \vec{j} \\ 2,5 \cdot \vec{i} \end{pmatrix}$



$\vec{v} = \begin{pmatrix} 3,5 \cdot \vec{j} \\ 2,5 \cdot \vec{i} \end{pmatrix}$



Addition:

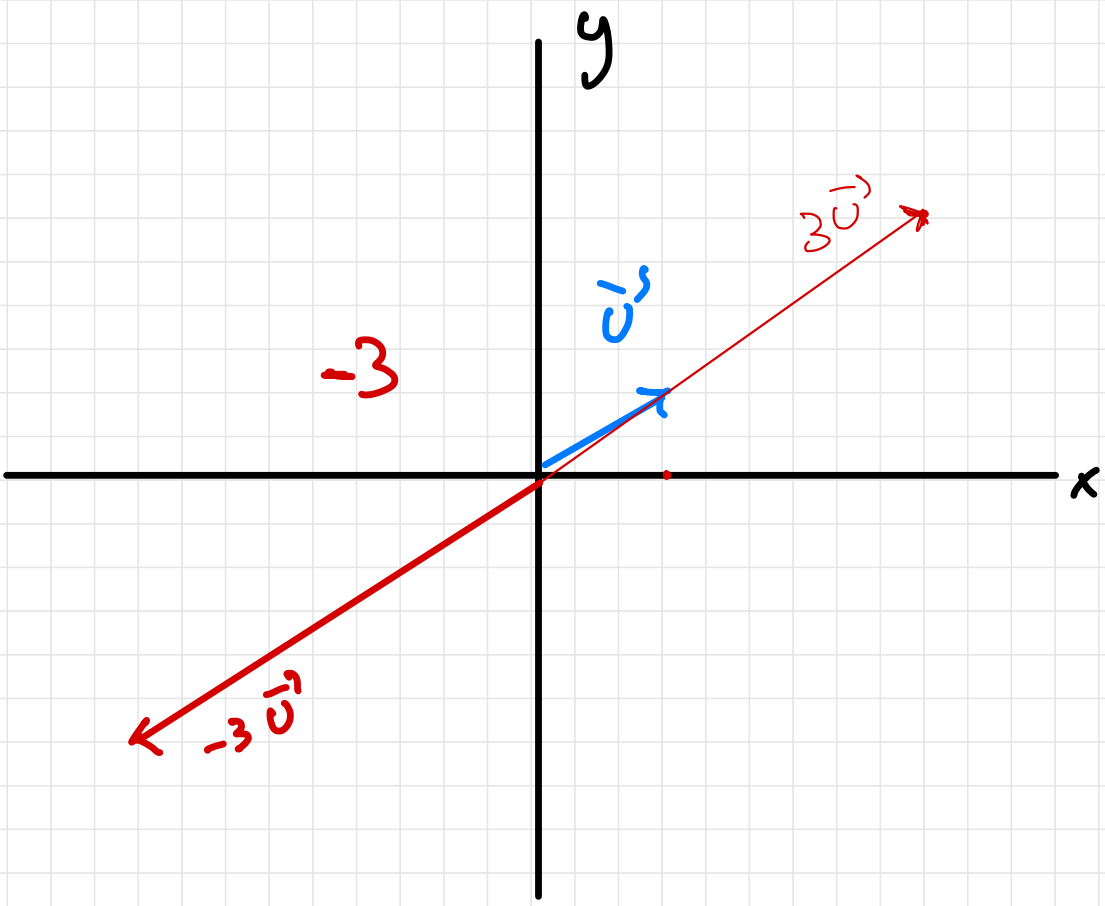


$$\vec{u} = \begin{pmatrix} u_1 \\ u_2 \end{pmatrix}^{4}_{7} \qquad v = \begin{pmatrix} v_1 \\ v_2 \end{pmatrix}^{9}_{2}$$

$$\vec{w} = \vec{u} + \vec{v} = \begin{pmatrix} u_1 + v_1 \\ u_2 + v_2 \end{pmatrix}^{13}_{9}$$

Scalar multiplication:

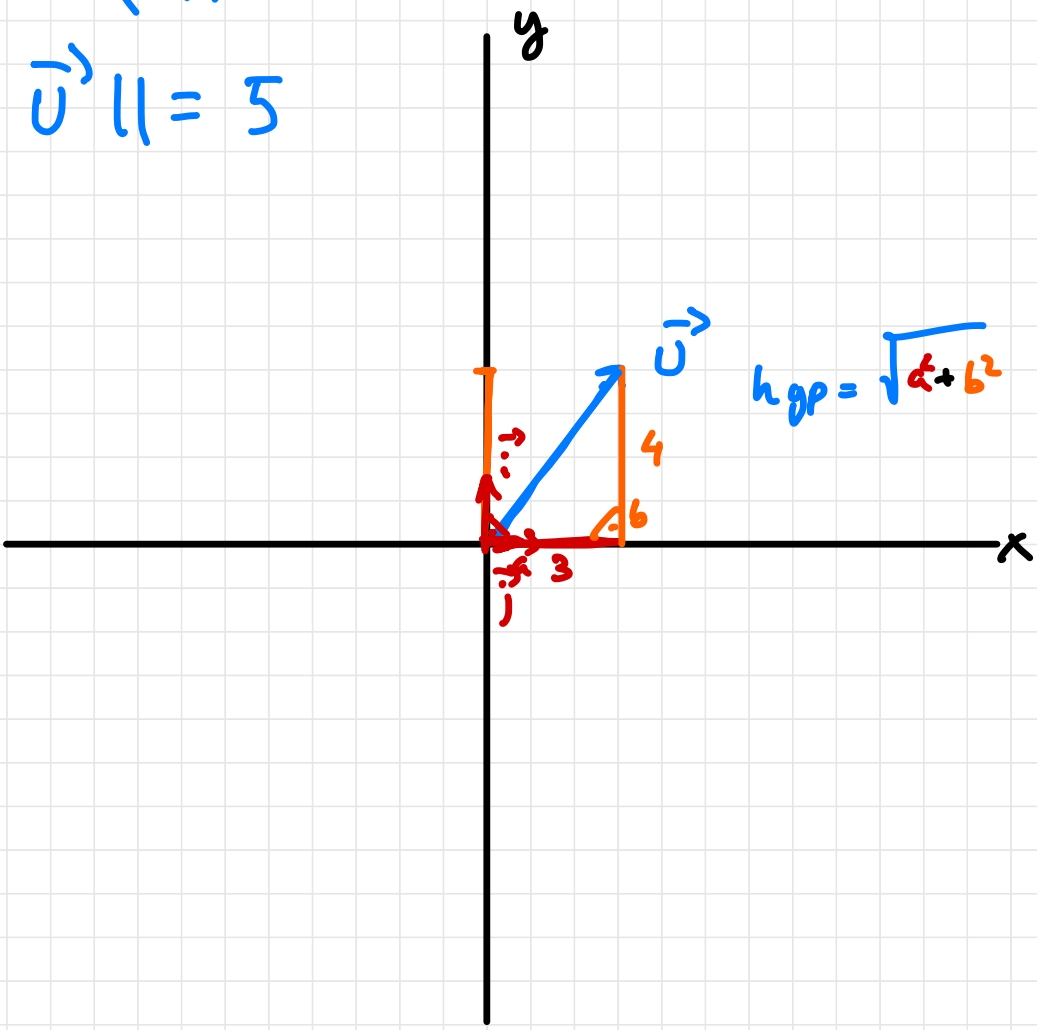
$$s \cdot \vec{v} = \begin{pmatrix} s \cdot v_1 \\ s \cdot v_2 \end{pmatrix}$$



Norm:

$\vec{u} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$

$\|\vec{u}\| = 5$

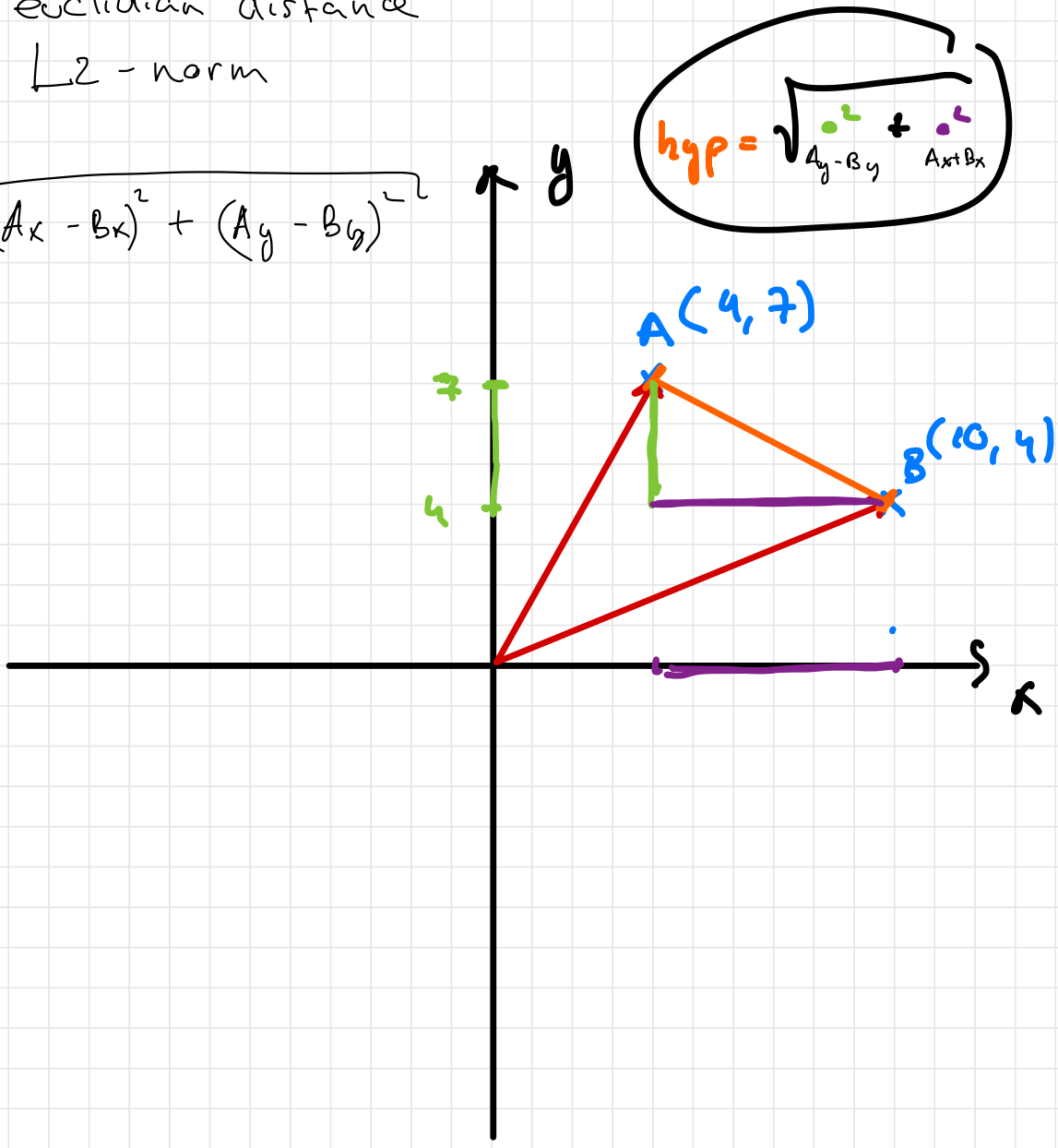


Distances:

euclidian distance

L2 - norm

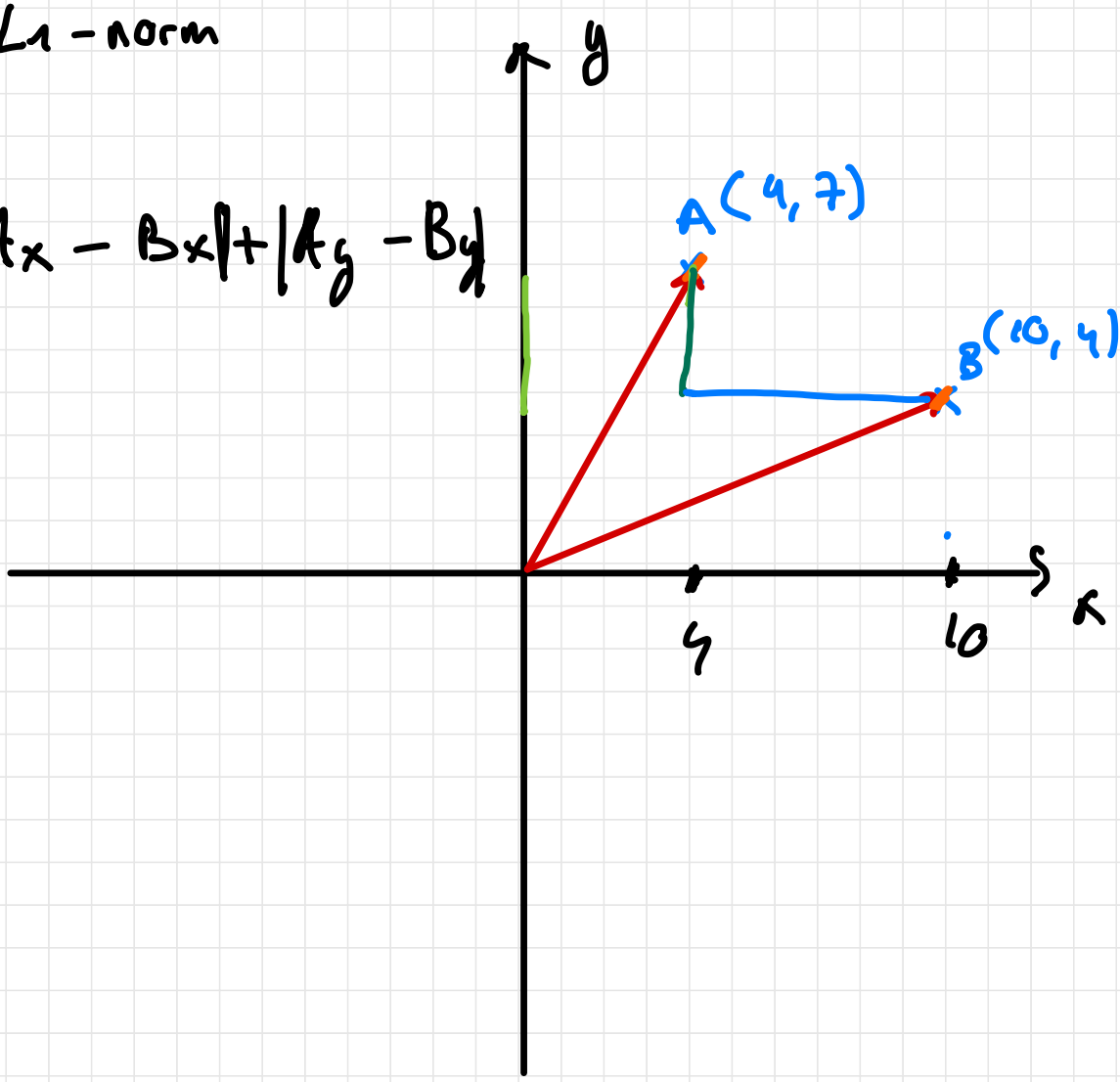
$$\sqrt{(A_x - B_x)^2 + (A_y - B_y)^2}$$

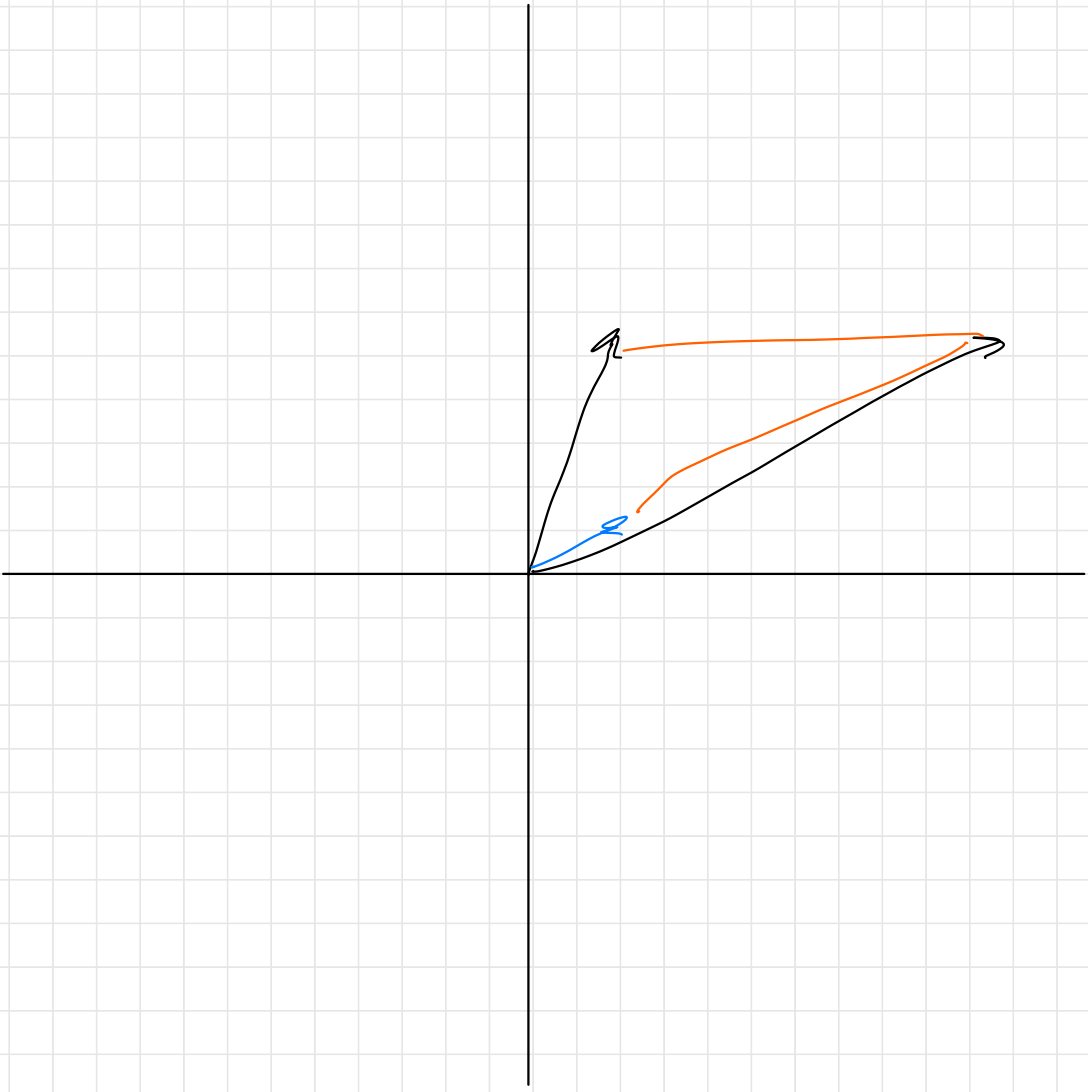


Manhattan distance

L1 - norm

$|A_x - B_x| + |A_y - B_y|$





$$\vec{u} = \begin{pmatrix} u_1 \\ u_2 \end{pmatrix} \qquad \vec{u} \cdot \vec{v} = (u_1 \cdot v_1) + (u_2 \cdot v_2)$$

$$\vec{v} = \begin{pmatrix} v_1 \\ v_2 \end{pmatrix}$$

if $\vec{w}$ and $\vec{v}$ are orthogonal (perpendicular) the dot product is 0