

Vecteurs

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1. Définition :

Graphique

- point d'appli cati
- direction / support
- sens
- norme, longueur



Analytique

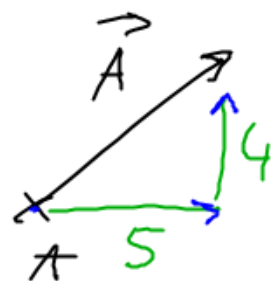
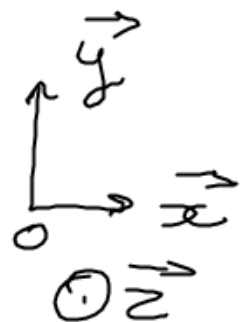
- point d'appli cati
- coordonnées

$$\vec{A} = \begin{pmatrix} X_A \\ Y_A \\ Z_A \end{pmatrix}$$

$$\|\vec{A}\| = \sqrt{X_A^2 + Y_A^2 + Z_A^2}$$

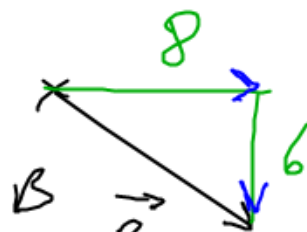
2. Ex

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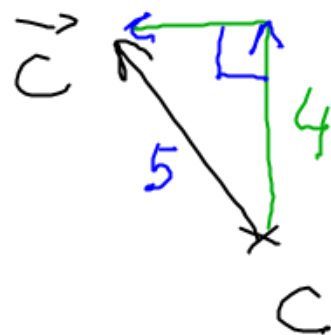
$$\vec{A} = \begin{pmatrix} 5 \\ 4 \\ 0 \end{pmatrix}$$

$$\begin{aligned} \|\vec{A}\| &= \sqrt{5^2 + 4^2} \\ &= \sqrt{41} \end{aligned}$$



$$\vec{B} = \begin{pmatrix} 8 \\ -6 \\ 0 \end{pmatrix}$$

$$\begin{aligned} \|\vec{B}\| &= \sqrt{8^2 + 6^2} \\ &= \sqrt{100} = 10 \end{aligned}$$

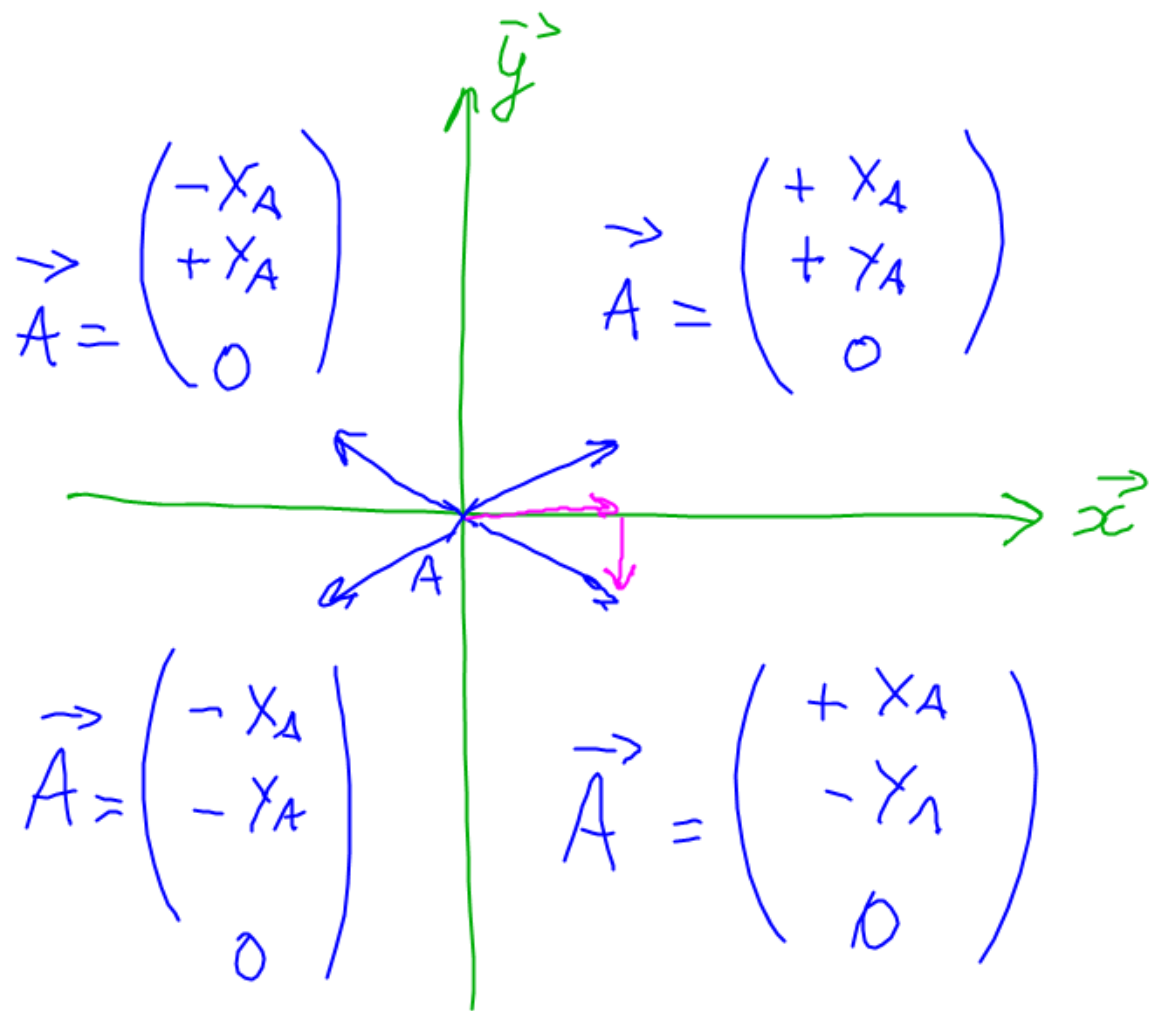


$$\|\vec{C}\| = 5$$

$$\vec{C} = \begin{pmatrix} x_c \\ 4 \\ 0 \end{pmatrix}$$

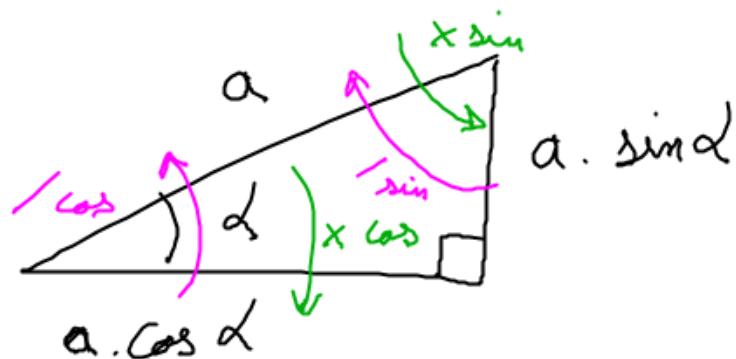
$$5^2 = 4^2 + x_c^2$$

$$\begin{aligned} x_c &= \sqrt{5^2 - 4^2} = \sqrt{9} \\ &= 3 \end{aligned}$$



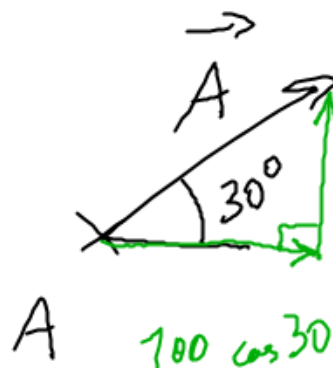
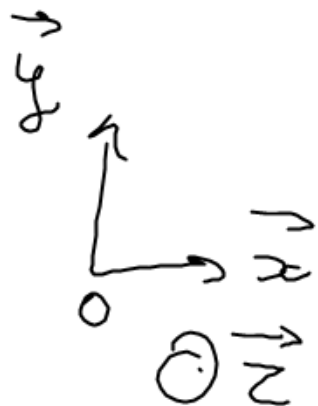
3. Rappel trigo:

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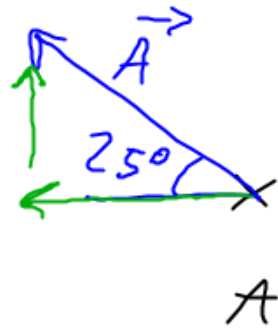
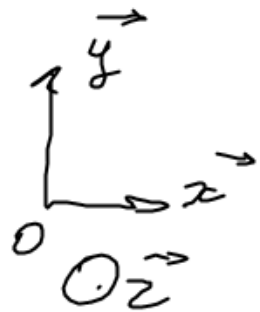
$$\tan d = \frac{\text{opp}}{\text{adj}} = \text{pente}$$

4. Ex $\vec{V}$ et trigo



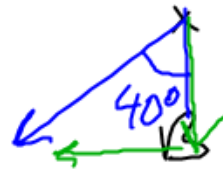
$$\|\vec{A}\| = 100$$

$$\vec{A} = \begin{pmatrix} 100 \cos 30 \\ 100 \sin 30 \\ 0 \end{pmatrix}$$



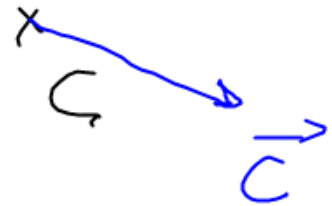
$$\|\vec{A}\| = 60$$

$$\vec{A} = \begin{pmatrix} \\ \\ \end{pmatrix}$$



$$\|\vec{B}\| = 80$$

$$\vec{B} = \begin{pmatrix} \\ \\ \end{pmatrix}$$



$$\|\vec{C}\| = 120$$

$$\vec{C} = \begin{pmatrix} \\ -40 \\ \end{pmatrix}$$