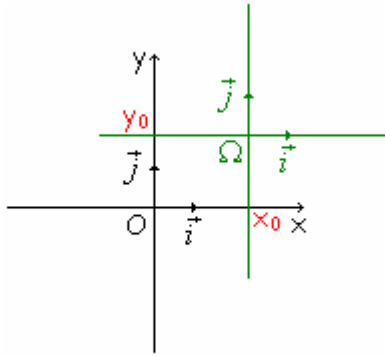


Changement de repère



$R(O, \vec{i}, \vec{j})$ $M(x; y)$ dans R

$\Omega(x_0, y_0)$

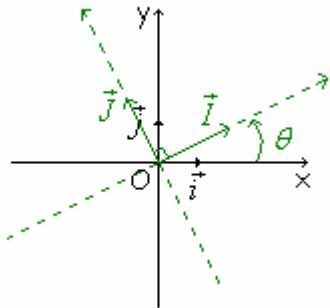
$R'(\Omega, \vec{i}', \vec{j}')$ $M(X; Y)$ dans R'

$$\overrightarrow{OM} = x\vec{i} + y\vec{j}$$

$$\overrightarrow{O\Omega} + \overrightarrow{\Omega M} = x\vec{i} + y\vec{j}$$

$$(x_0\vec{i} + y_0\vec{j}) + (X\vec{i}', Y\vec{j}') = (x\vec{i} + y\vec{j})$$

$$\begin{cases} x = x_0 + X \\ y = y_0 + Y \end{cases} \rightarrow \begin{cases} X = x - x_0 \\ Y = y - y_0 \end{cases}$$



$R(O, \vec{i}, \vec{j}) \rightarrow R'(O, \vec{I}, \vec{J})$

$M(x; y) \rightarrow M(X; Y)$

$$\vec{I} = \cos \theta \vec{i} + \sin \theta \vec{j}$$

$$\vec{J} = -\sin \theta \vec{i} + \cos \theta \vec{j}$$

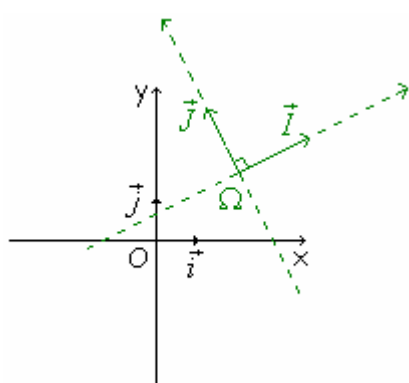
$$\overrightarrow{OM} = X\vec{I} + Y\vec{J} = X(\cos \theta \vec{i} + \sin \theta \vec{j}) + Y(-\sin \theta \vec{i} + \cos \theta \vec{j})$$

$$\overrightarrow{OM} = (X \cos \theta - Y \sin \theta)\vec{i} + (X \sin \theta + Y \cos \theta)\vec{j}$$

$$\overrightarrow{OM} = x\vec{i} + y\vec{j}$$

$$\begin{cases} x = X \cos \theta - Y \sin \theta \\ y = X \sin \theta + Y \cos \theta \end{cases}$$

$$\rightarrow \begin{cases} X = x \cos \theta + y \sin \theta \\ Y = -x \sin \theta + y \cos \theta \end{cases}$$



$R(O, \vec{i}, \vec{j}) \rightarrow R'(\Omega, \vec{I}, \vec{J})$

$M(x; y) \rightarrow M(X; Y)$

$\Omega(x_0, y_0)$ dans R

$$\begin{cases} x = x_0 + X \cos \theta - Y \sin \theta \\ y = y_0 + X \sin \theta + Y \cos \theta \end{cases}$$