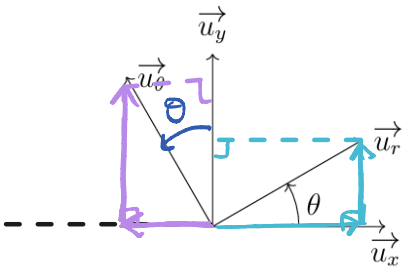
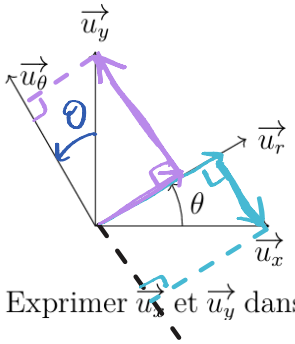
Entraînement projections



Exprimer $\vec{u_r}$ et $\vec{u_\theta}$ dans la base $(\vec{u_x}, \vec{u_y})$.

$$\vec{u}_r = \cos\theta\,\vec{u}_x + \sin\theta\,\vec{u}_y$$

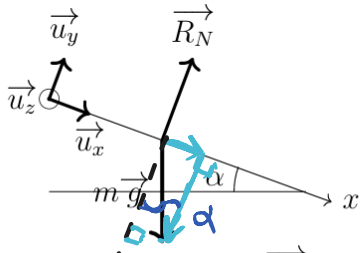
$$\vec{u}_\theta = -\sin\theta\,\vec{u}_x + \cos\theta\,\vec{u}_y$$



Exprimer $\vec{u_x}$ et $\vec{u_y}$ dans la base $(\vec{u_r}, \vec{u_\theta})$.

$$\vec{u}_x = \cos\theta\,\vec{u}_r - \sin\theta\,\vec{u}_\theta$$

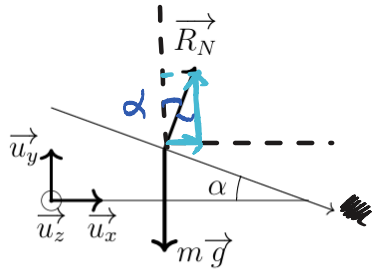
$$\vec{u}_y = \sin\theta\,\vec{u}_r + \cos\theta\,\vec{u}_\theta$$



Exprimer $\vec{mg}$ et $\vec{R_N}$ dans la base $(\vec{u_x}, \vec{u_y}, \vec{u_z})$

$$\vec{R_N} = \|\vec{R_N}\|\,\vec{u_y}$$

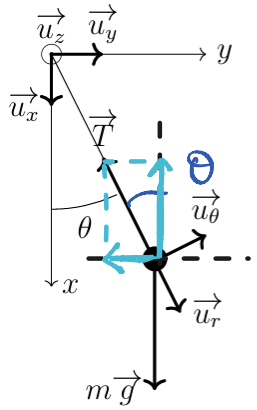
$$\vec{mg} = \|\vec{mg}\|\,(\sin\alpha\,\vec{u}_x - \cos\alpha\,\vec{u}_y)$$



Exprimer $\vec{mg}$ et $\vec{R_N}$ dans la base $(\vec{u_x}, \vec{u_y}, \vec{u_z})$

$$\vec{mg} = -m\|\vec{g}\|\,\vec{u_y}$$

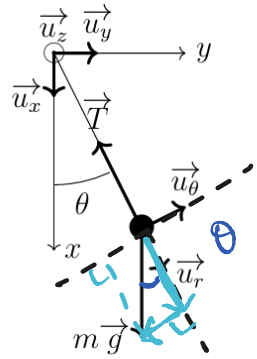
$$\vec{R_N} = \|\vec{R_N}\|\,(\sin\alpha\,\vec{u}_x + \cos\alpha\,\vec{u}_y)$$



Exprimer $m\overrightarrow{g}$ et $\overrightarrow{T}$ dans la base $(\overrightarrow{u_x}, \overrightarrow{u_y}, \overrightarrow{u_z})$

$m\vec{g} = m\|\vec{g}\|\vec{u}_n$

$\vec{T} = \|\vec{T}\|(-\cos\Theta\,\vec{u}_n - \sin\Theta\,\vec{u}_y)$



Exprimer $m\overrightarrow{g}$ et $\overrightarrow{T}$ dans la base $(\overrightarrow{u_r}, \overrightarrow{u_\theta}, \overrightarrow{u_z})$

$\vec{T} = -\|\vec{T}\|\vec{u}_n$

$m\vec{g} = m\|\vec{g}\|(\cos\Theta\,\vec{u}_n - \sin\Theta\,\vec{u}_\theta)$