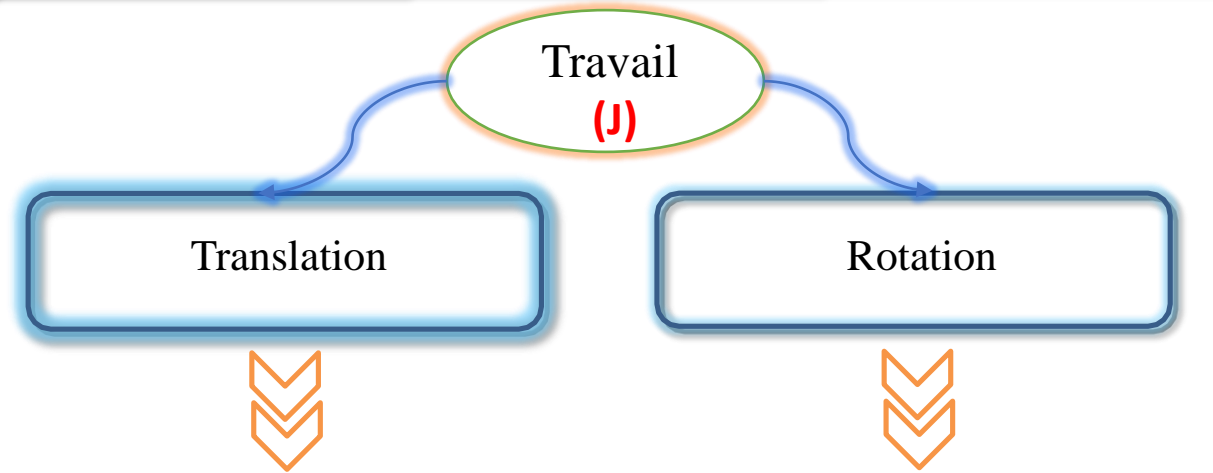


Travail et Puissance d'une Force

Fiche de revision n°3
1er BAC SM & SE 7

Prof:
AIT-ZAABOUN Aïssam

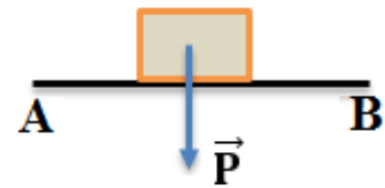


$$W_{A \rightarrow B}(\vec{F}) = F \times AB \times \cos(\alpha)$$

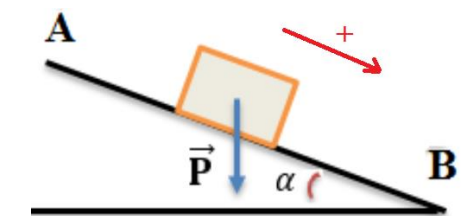
$$W_{A \rightarrow B}(\vec{F}) = M_{\Delta}(\vec{F}) \cdot \Delta\theta$$

$w > 0$: Travail moteur
 $w < 0$: Travail résistant
 $w = 0$: Travail nul

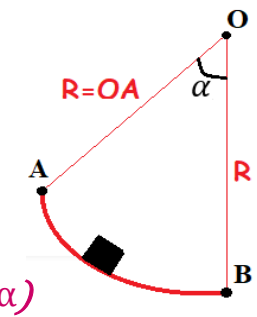
Travail du poids (J) $\Rightarrow W(\vec{P}) = m \cdot g(z_i - z_f) = \begin{cases} + m \cdot g \cdot h \\ - m \cdot g \cdot h \end{cases}$



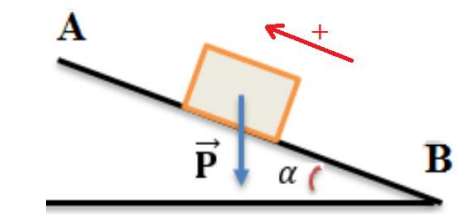
$$W_{A \rightarrow B}(\vec{P}) = 0 \text{ J}$$



$$W_{A \rightarrow B}(\vec{P}) = +m g AB \sin(\alpha)$$



$$W_{A \rightarrow B}(\vec{P}) = +m g R (1 - \cos(\alpha))$$



$$W_{B \rightarrow A}(\vec{P}) = -m g AB \sin(\alpha)$$

Puissance (W)

moyenne $P_m = \frac{W(\vec{F})}{\Delta t}$

instantanée

- Translation : $P(t) = F \cdot V \cdot \cos(\vec{F}, \vec{V})$
- Rotation : $P(t) = M_{\Delta}(\vec{F}) \cdot \omega(t)$

Si le mouvement rectiligne Uniforme : la somme des forces nul (principe d'inertie). $\sum \vec{F}_i = \vec{0} \Rightarrow \sum W_{A \rightarrow B}(\vec{F}_i) = 0$