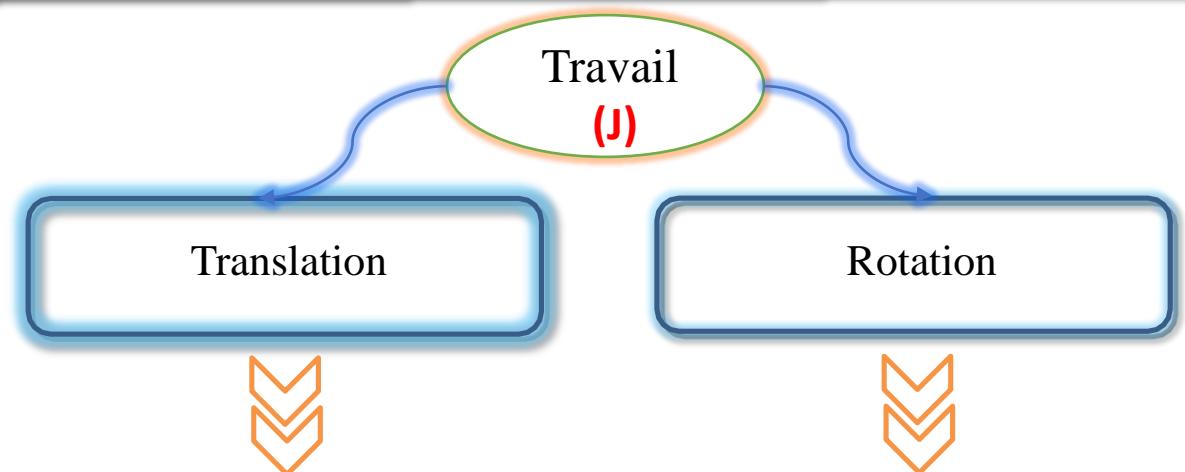


Travail et Puissance d'une Force

Prof:
AIT-ZAABOUN Aïssam



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

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

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

moyenne

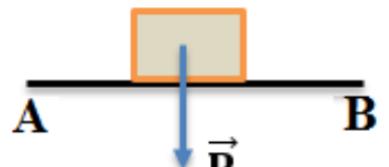
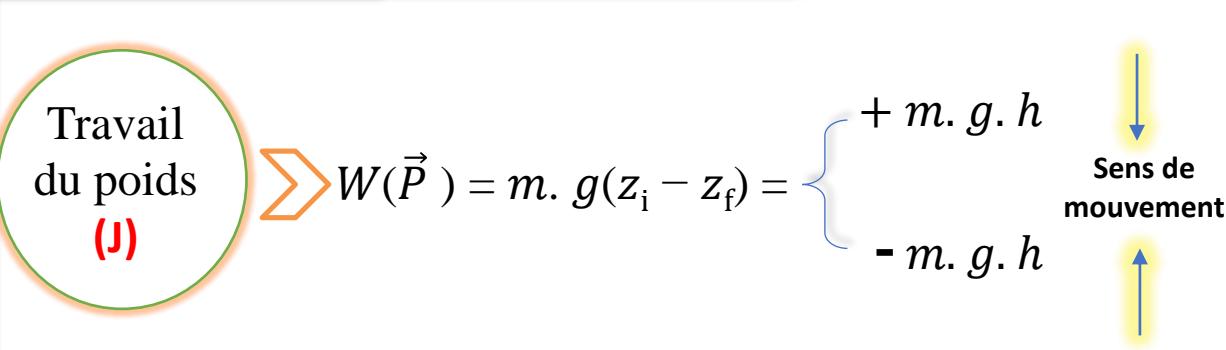
$$P_m = \frac{W(\vec{F})}{\Delta t}$$

Puissance (W)

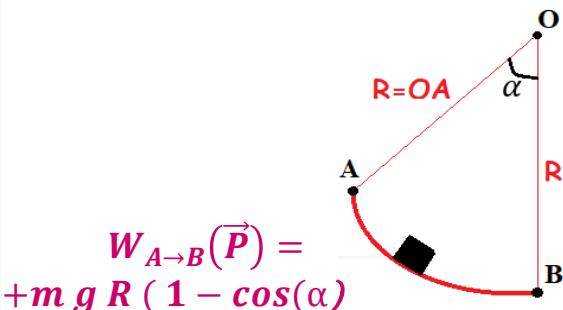
instantanée

Translation : $P(t) = \vec{F} \cdot \vec{V} \cdot \cos(\vec{F}, \vec{V})$

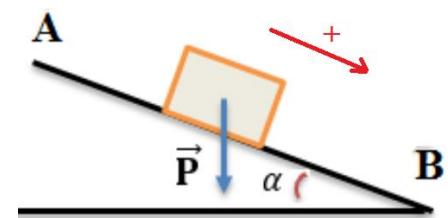
Rotation : $P(t) = M_A(\vec{F}) \cdot \omega(t)$



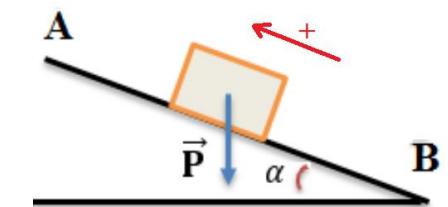
$$W_{A \rightarrow B}(\vec{P}) = 0 \text{ J}$$



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



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



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

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