

Travail et Puissance d'une Force

Talamid.ma : هذا الملف تم تحميله من موقع
 Fiche de révision n° 3
 1er BAC SM & SE 7

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Travail
 (J)

Translation

Rotation

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

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

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

Puissance
 (W)

moyenne

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

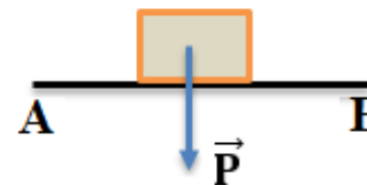
Translation : $P(t) = F \cdot V \cdot \cos(\vec{F}, \vec{V})$

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

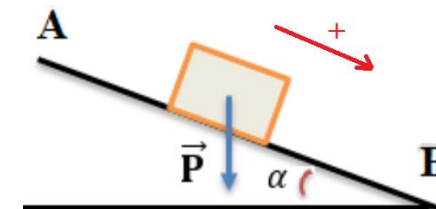
Travail
 du poids
 (J)

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

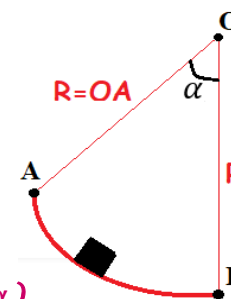
Sens de
 mouvement



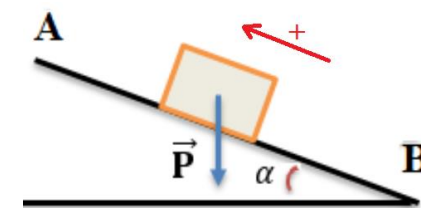
$$W_{A \rightarrow B}(\vec{P}) = 0 \text{ J}$$



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



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



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

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

Talamid.ma : للمزيد من الملفات قم بزيارة الموقع