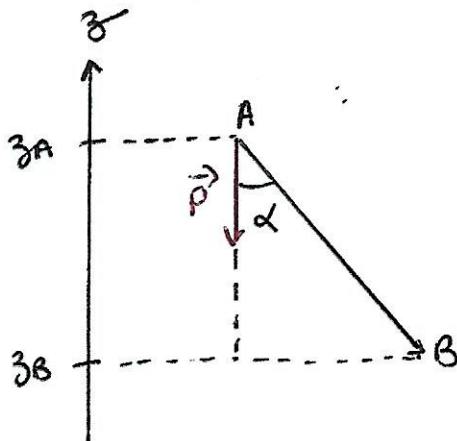


# Démonstrations

poids  $\vec{P}$



<https://youtu.be/ma9Hx9rAouA>

$$\begin{aligned}W_{AB}(\vec{P}) &= \vec{P} \cdot \vec{AB} = P \times AB \times \cos \alpha \\ &= mg \times AB \times \cos \alpha\end{aligned}$$

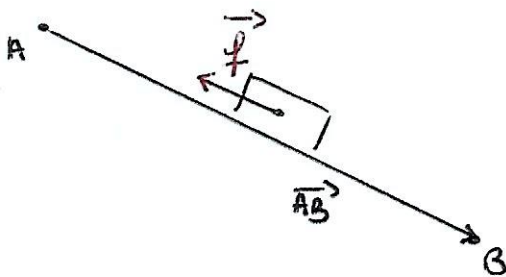
→ rappel  $\cos \alpha = \frac{\text{adj}}{\text{hyp}}$

or dans le triangle :  $\cos \alpha = \frac{z_A - z_B}{AB}$

donc  $W_{AB}(\vec{P}) = mg \times \cancel{AB} \times \frac{z_A - z_B}{\cancel{AB}}$

$$\boxed{W_{AB}(\vec{P}) = mg(z_A - z_B)}$$

forces de frottements  $\vec{f}$



$$W_{AB}(\vec{f}) = \vec{f} \cdot \vec{AB} = f \times AB \times \cos \alpha$$

$$W_{AB}(\vec{f}) = f \times AB \times \underbrace{\cos 180}_{=-1}$$

$$\boxed{W_{AB}(\vec{f}) = -f \times AB}$$