

Vitesse au point C.

$$E_{\text{mecc}} C = E_{\text{cin}} C + E_{\text{pot}} C$$

$$\text{ici } h_C = 0$$

$$h_C = h_D = 0$$

$$E_{\text{mecc}} C = \frac{1}{2} \cdot M \cdot v_C^2 + \underbrace{M \cdot g \cdot h_C}_0$$

$$E_{\text{mecc}} A = E_{\text{mecc}} B = E_{\text{mecc}} C$$

$$E_{\text{mecc}} A = E_{\text{mecc}} C$$

$$\frac{1}{2} \cdot M v_A^2 + M g h_A = \frac{1}{2} \cdot M v_C^2$$

$$v_C^2 = \frac{1}{2} \frac{M v_A^2 \cdot 2}{M} + \frac{2 \cdot M g h_A}{M}$$

$$v_C^2 = v_A^2 + 2 \cdot g \cdot h_A$$

$$v_C = \sqrt{v_A^2 + 2 \cdot g \cdot h_A}$$

Force de frottement f entre C et D.

$$E_{\text{mecc}} D = E_{\text{cin}} D + E_{\text{pot}} D = -W_{\text{frottement}} \quad h_C = h_D = 0$$

$$= \frac{1}{2} \cdot M \cdot v_D^2 + \underbrace{M \cdot g \cdot h_D}_0 = -W_{\text{frottement}}$$

$$E_{\text{mecc}} D = E_{\text{mecc}} A = E_{\text{mecc}} B = E_{\text{mecc}} C = -W_{\text{frottement}}$$

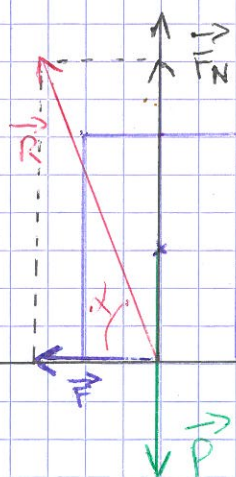
Calcul du travail

$$W_{\text{frottement}} = \|\vec{F}\| \cdot d$$

$$E_{\text{mecc}} D = E_{\text{mecc}} C = -W_{\text{frottement}}$$

$$E_{\text{mecc}} D = \frac{1}{2} \cdot M v_C^2 = -\|\vec{F}\| \cdot d$$

$$\|\vec{F}\| = -\frac{1}{2} \cdot \frac{M \cdot v_C^2}{d}$$



$$\vec{F} = \|\vec{R}\| \cdot \cos \alpha$$