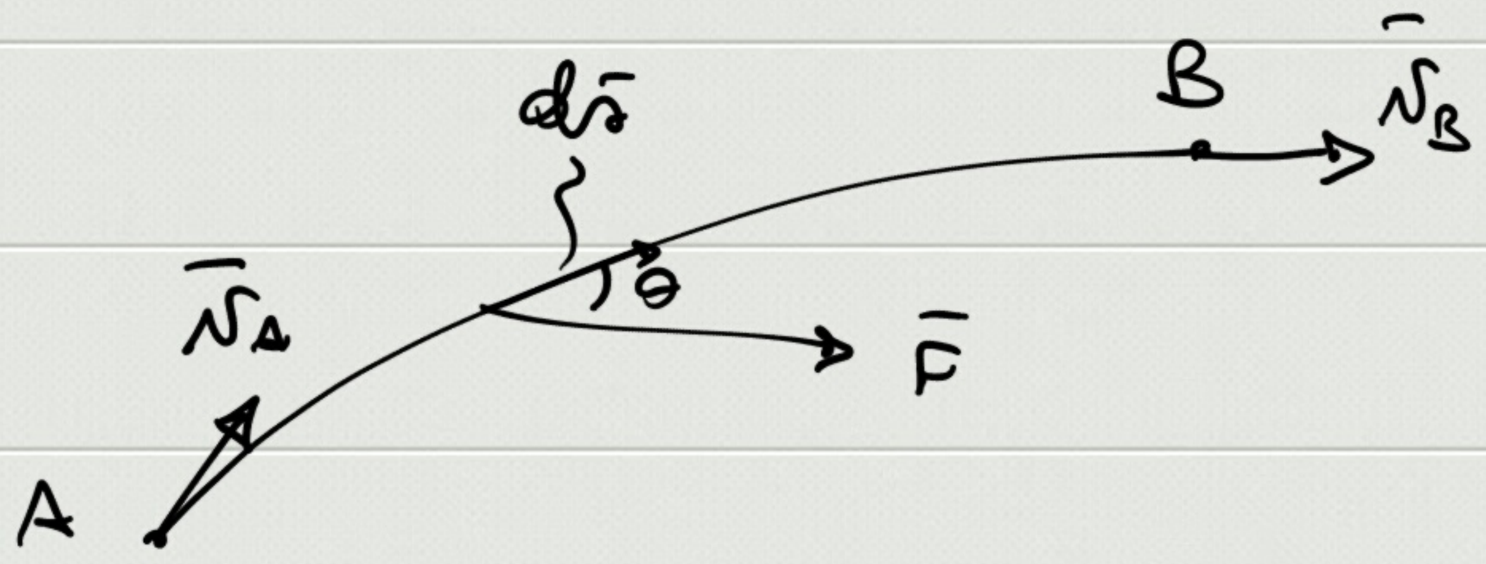
$$\underline{\underline{dW}} = \bar{F}\, d\bar{s} = F_T\, ds = m\,\frac{dv}{dt}\,ds = \quad *$$

$$ds = \left(\frac{ds}{dt}\right) dt \qquad dv = \left(\frac{dv}{dt}\right) dt$$

$$* = m\,dv \cdot \frac{1}{dt}\left(\frac{ds}{dt}\right)\cancel{dt} = m\,dv\,\frac{ds}{dt} = \underline{\underline{m\,v\,dv}}$$



$$\boxed{W_{A\to B} = \int_A^B dW = \int_{v_A}^{v_B} m\,v\,dv = \frac{1}{2}\,m\,v^2\Big|_{v_A}^{v_B} = \frac{1}{2}\,m\,v_B^2 - \frac{1}{2}\,m\,v_A^2}$$

Energia cinetica $\boxed{E_K = \frac{1}{2}\,m\,v^2}$

Teorema dell'energia cinetica (T. forze vive)

$$\boxed{W_{A\to B} = E_{K,B} - E_{K,A} = \Delta E_K}$$

$$W_{A \to B} = E_{K,B} - E_{K,A}$$

$$E_K = \frac{1}{2} m v^2 + \text{cost}$$

$$E_K (v=0) = 0 \quad \Rightarrow \quad \left.\begin{array}{l} E_K (v=0) = \underset{\neq 0}{\cancel{0}} + \text{cost} \end{array}\right\} \Rightarrow$$

$$\boxed{\text{cost} = 0} \quad \Rightarrow \quad \boxed{E_K = \frac{1}{2} m v^2}$$

$$[E_K] = [W] = J \qquad (\text{Joule})$$