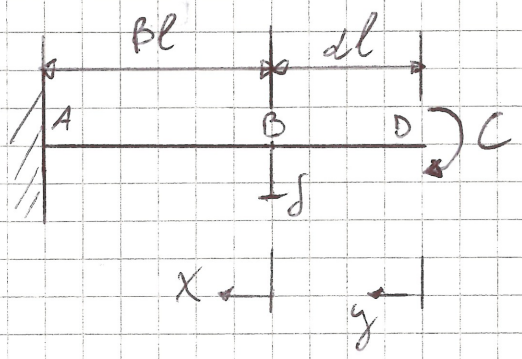
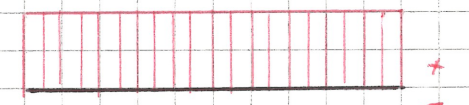
Esercizio 2.14.

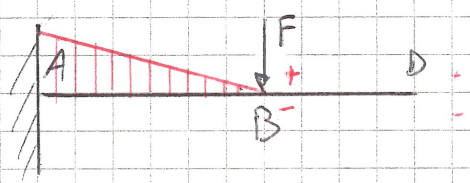


Determinare δ con il teorema di Castigliano.
Ricavo subito $M_{f_C}(x)$ e $M_{f_C}(y)$.



$$M_{f_C}(x) = C$$
$$M_{f_C}(y) = C$$

Ora devo introdurre una F fittizia nel punto B.



Calcolo M_{f_F}.

$$M_{f_F}(x) = F \cdot x$$

$$M_{f_F}(y) = 0$$

Imposto ora la risoluzione:

$$U = \frac{1}{2EJ} \cdot \left[\int_0^{\beta l} (Fx + C)^2 dx + \int_0^{\alpha l} (C)^2 dy \right] =$$

$$= \frac{1}{2EJ} \left[F^2 \frac{l^3}{3} \cdot \beta^3 + 2F \cdot C \cdot \frac{\beta^2 l^2}{2} + C^2 \beta l + C^2 \alpha l \right]$$

$$\delta = \frac{\partial U}{\partial F}\Big|_{F=0} = \frac{1}{2EJ} \cdot \left(2 \cdot C \cdot \frac{\beta^2 \ell^2}{2}\right) = \frac{C\ell^2}{EJ} \cdot \frac{\beta^2}{2}$$