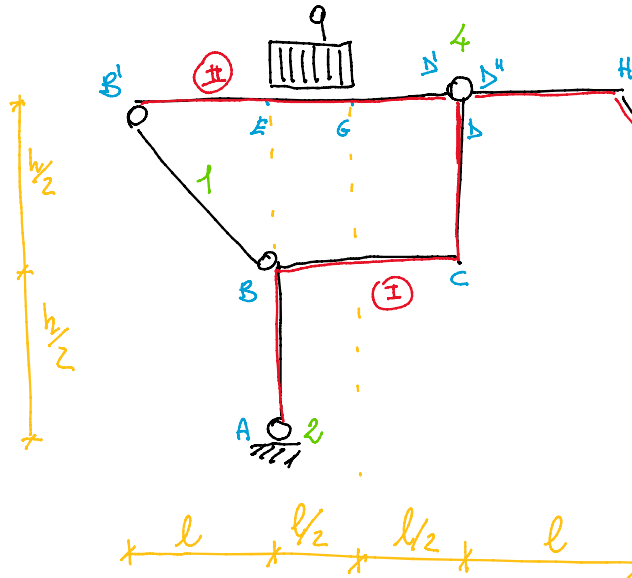


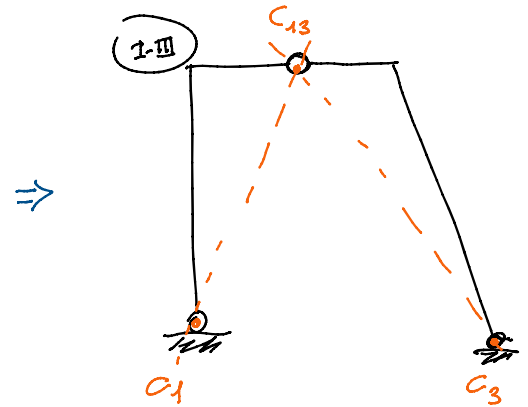
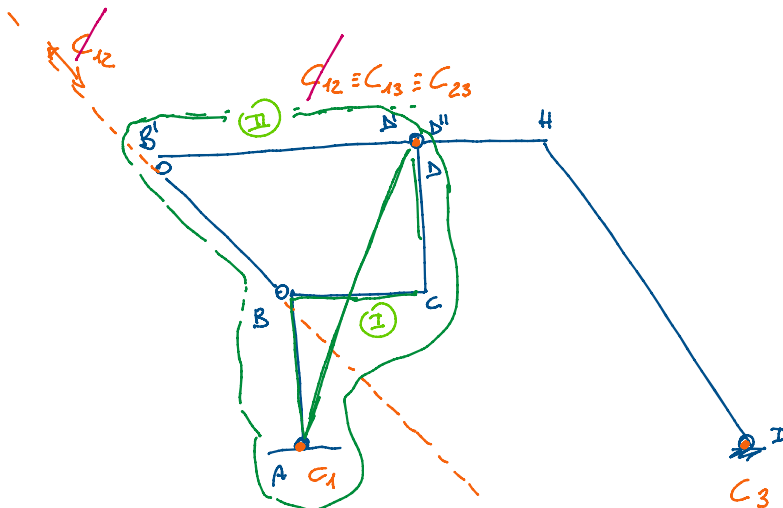


$$3t = 3 \cdot 3 = 9$$

$S(n-1)$
 $\downarrow$
 2
 numero dei tronchi

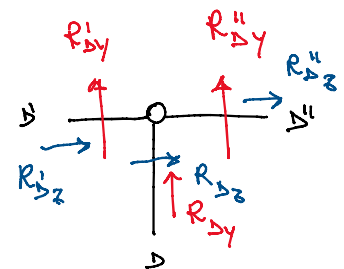
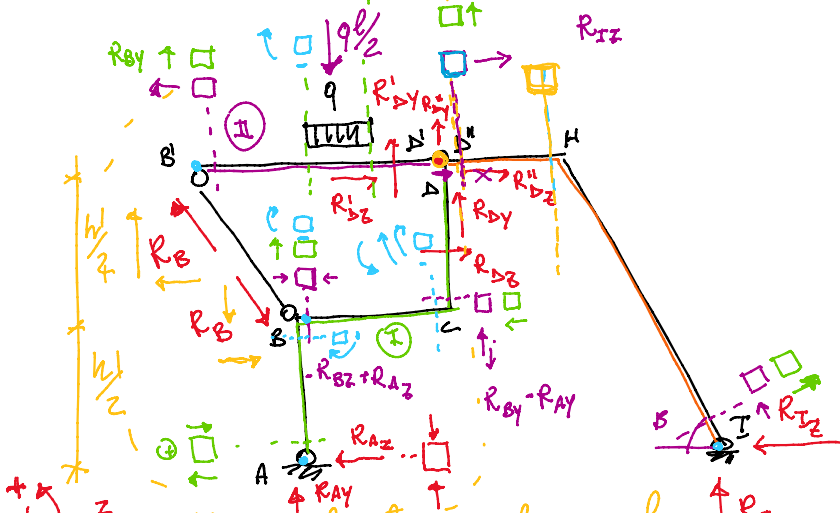
$$S = 2 + 2 + 4 + 1 = 9$$

$s = 3t$ (cond. nec. di non labilità)

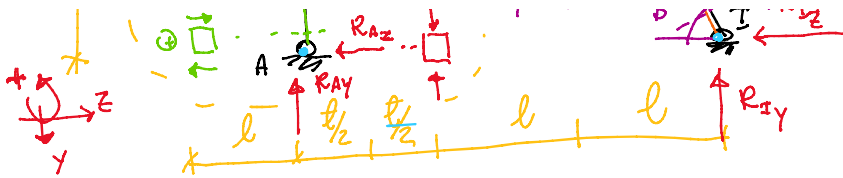


C_1, C_3, C_{13} non allineati
 per th. delle catene cinematiche
 non labile.

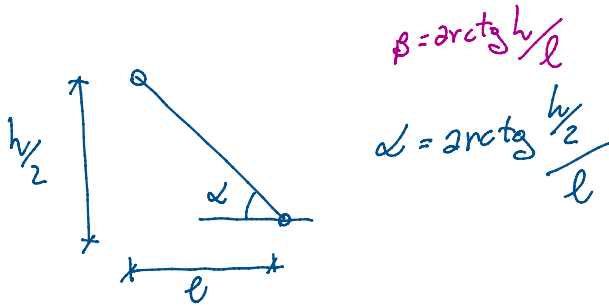
② Reazioni vincolari



$$\begin{cases} R_{Dy}^I = -R_{Dy} - R_{Dy}^I \\ R_{Dz}^I = -R_{Dz} - R_{Dz}^I \end{cases}$$



$$R_{Iz}^H = -R_{Iz} - R_{Iz}^I$$



$$\beta = \arctg \frac{h}{l}$$

$$\alpha = \arctg \frac{h/2}{l}$$

$$R_{Bz} = R_B \cdot \cos \alpha$$

$$R_{By} = R_B \cdot \sin \alpha$$

tronco I

$$\left\{ \begin{array}{l} \downarrow) -R_{Ay} + R_B \sin \alpha - R_{By} = 0 \\ \rightarrow) -R_{Az} + R_B \cos \alpha + R_{Iz} = 0 \\ A \curvearrowright) -R_B \cos \alpha \cdot \frac{h}{2} + R_{By} \cdot l + R_{Iz} \cdot h = 0 \end{array} \right.$$

Tronco III

$$\left\{ \begin{array}{l} \downarrow) R_{By} + R_{Iy} - R_{Iy} = 0 \\ \rightarrow) -R_{Iz} - R_{Iz}^I - R_{Iz} = 0 \\ B \curvearrowright) R_{Iy} \cdot 2l - R_{Iz} \cdot h = 0 \end{array} \right.$$

tronco II

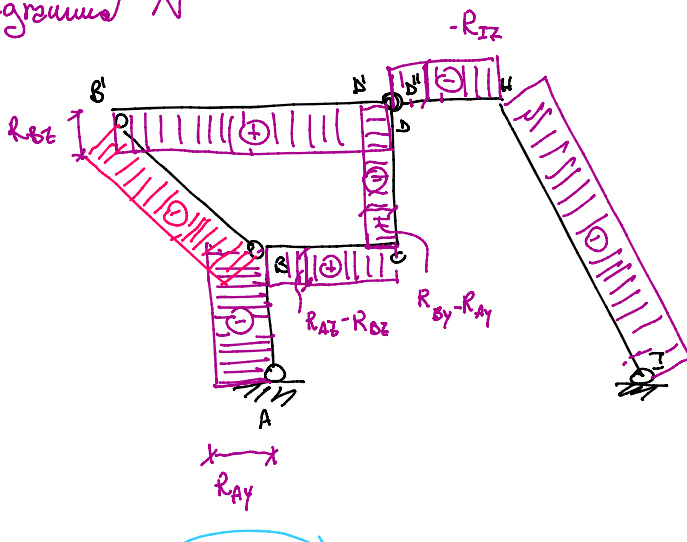
$$\left\{ \begin{array}{l} \downarrow) -R_B \sin \alpha + q \frac{l}{2} - R_{Iy}^I = 0 \\ \rightarrow) -R_B \cos \alpha + R_{Iz}^I = 0 \\ B \curvearrowright) -q \frac{l^2}{2} \cdot \frac{5}{4} + R_{Iy}^I \cdot 2l = 0 \end{array} \right.$$

$$R_{Iy}^I = \frac{q l^2}{8} \cdot 5 \cdot \frac{1}{2l} = \frac{5}{16} q l$$

$$R_B = \left[\frac{q l}{2} - \frac{5}{16} q l \right] \cdot \frac{1}{\sin \alpha}$$

$$R_{Iz}^I = \left[\frac{q l}{2} - \frac{5}{16} q l \right] \frac{\cos \alpha}{\sin \alpha}$$

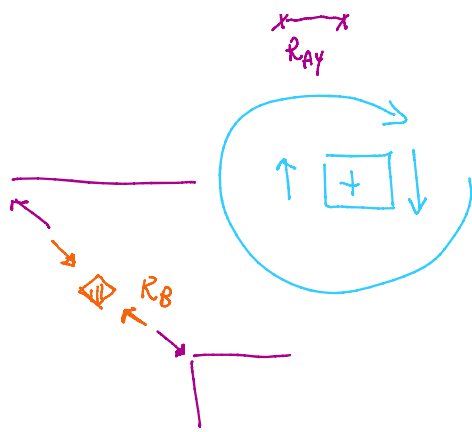
Diagramma N



$$R_{Iy}^N = R_{Iy}^N$$

$$R_{Iy}^T = R_{Iy}^T = R_{Iy} \sin \beta$$

$$R_{Iy}^N = R_{Iy} \cdot \cos \beta$$



$$R_{1y} = R_{1y} \cdot \cos \beta$$

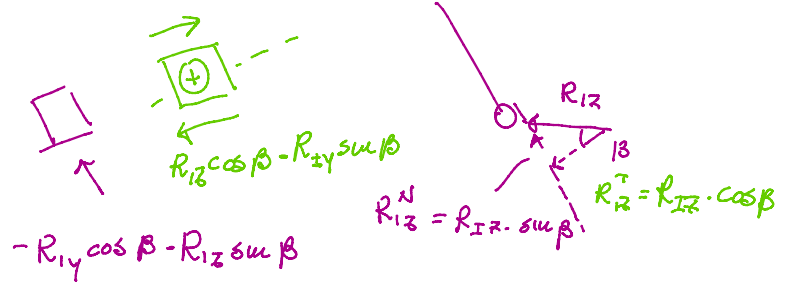


Diagramma T

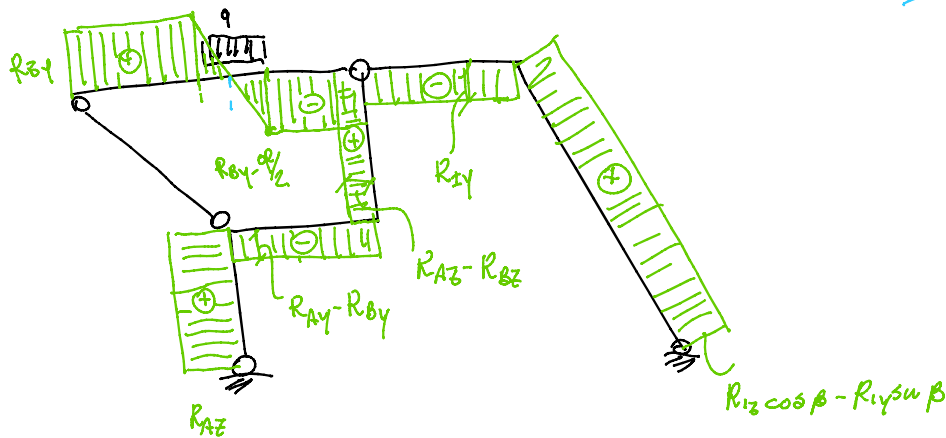
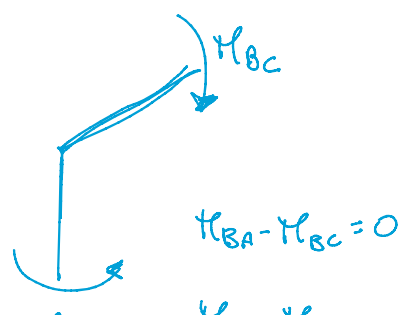
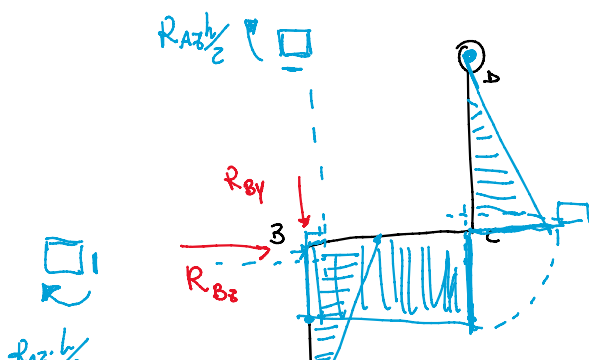
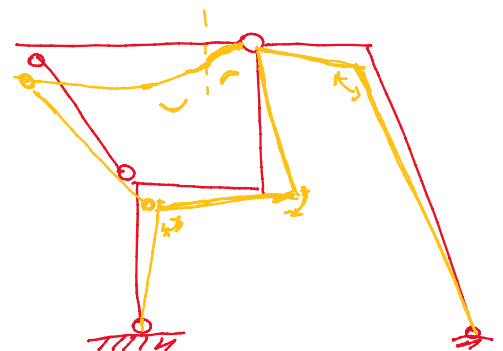
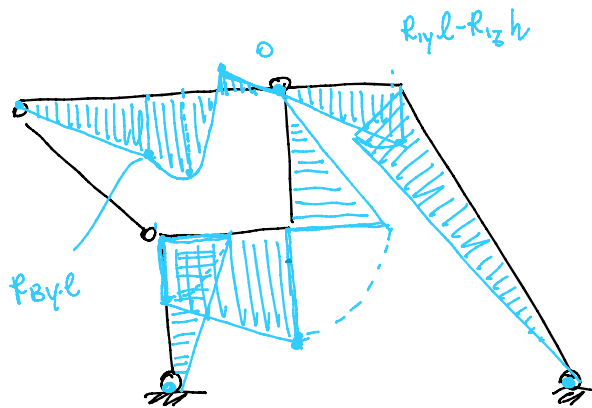
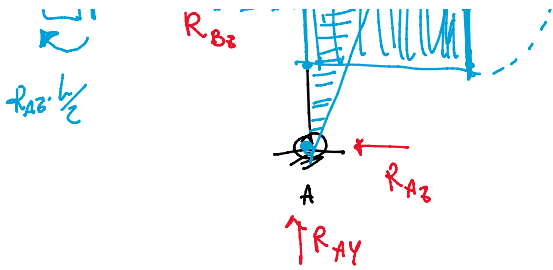
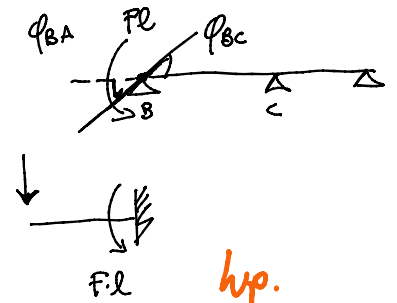
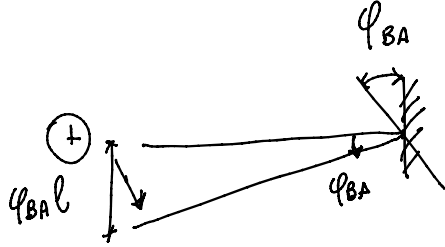
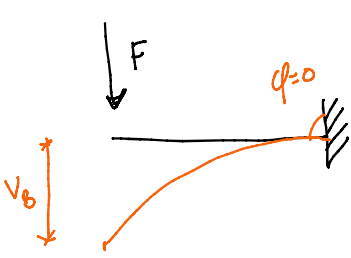
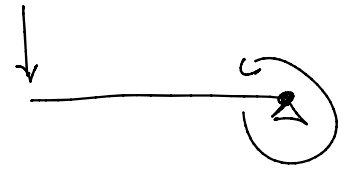
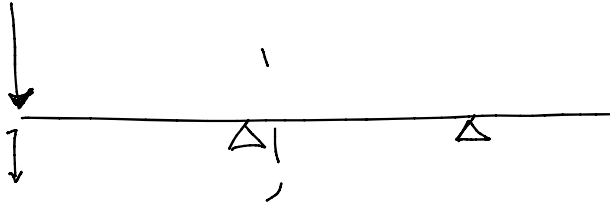


Diagramma M

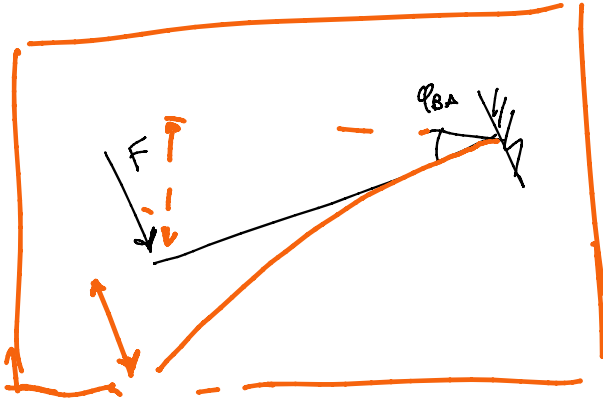




$$\begin{aligned} \pi_{BA} - \pi_{BC} &= 0 \\ \pi_{BA} &= \pi_{BC} \end{aligned}$$

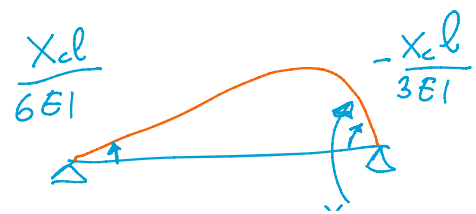
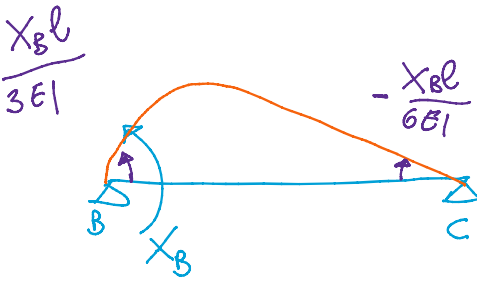
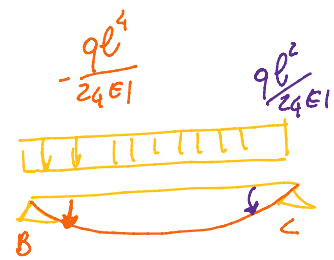
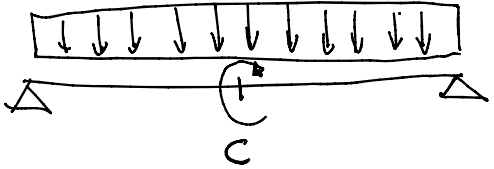
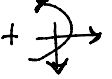


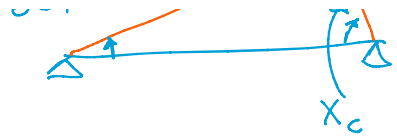
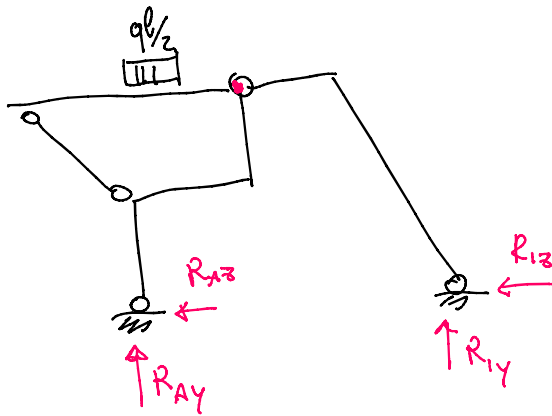
$$\frac{Fl^3}{3EI} + \phi_{BA} l$$



h.p.
- piccoli spostamenti

$$\phi_{BA} \approx \tan \phi_{BA}$$





$$\left\{ \begin{array}{l} \downarrow q \frac{l}{2} - R_{Ax} - R_{1x} = 0 \\ \rightarrow -R_{Ay} - R_{1y} = 0 \end{array} \right.$$