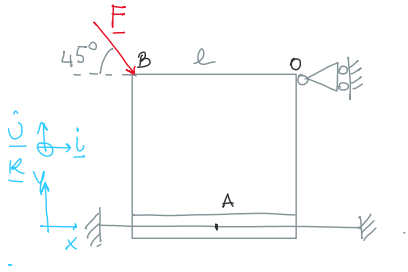
Principio di sovrapposizione degli effetti

venerdì 25 ottobre 2024 10:46

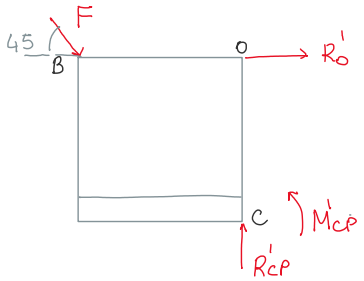
PSE

CASO I



⇒ Valutare DCL definitivo

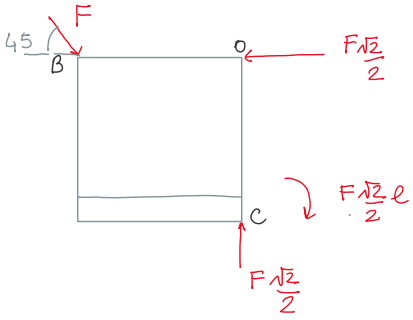
DCL PRELIM.



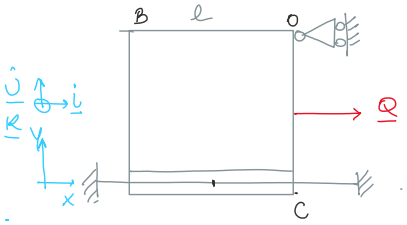
$$\begin{cases} x: & F\frac{\sqrt{2}}{2} + R_O' = 0 \\ y: & -F\frac{\sqrt{2}}{2} + R_{CP}' = 0 \\ O\circlearrowleft & F\frac{\sqrt{2}}{2}\,l + M_{CP}' = 0 \end{cases}$$

$$\begin{cases} R_O' = -F\frac{\sqrt{2}}{2} < 0 \\ R_{CP}' = F\frac{\sqrt{2}}{2} \\ M_{CP}' = -F\frac{\sqrt{2}}{2}\,l \end{cases}$$

DCL DEF

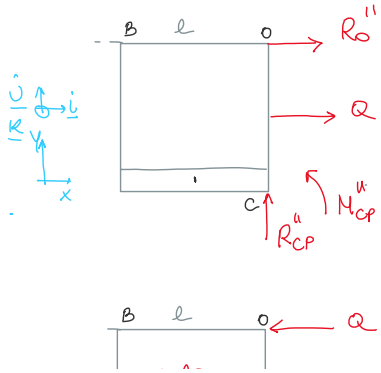


CASO II



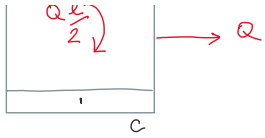
REAZIONI VINCOLARE
- STESSO VERSO
- STESSO POLO RIDUZIONE

DCL. PREL



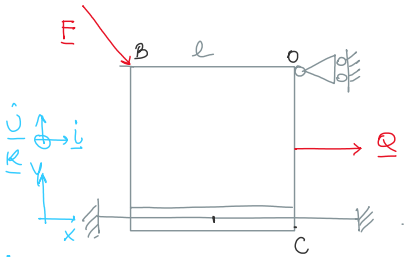
$$\begin{cases} x: & R_O'' + Q = 0 \\ y: & R_{CP}'' = 0 \\ O\circlearrowleft & Q\frac{l}{2} + M_{CP}'' = 0 \end{cases}$$

$$\begin{cases} R_O'' = -Q < 0 \\ R_{CP}'' = 0 \end{cases}$$

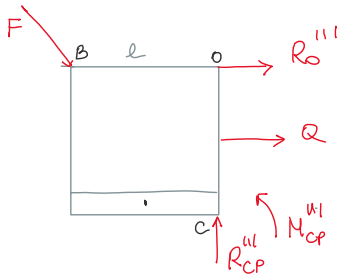


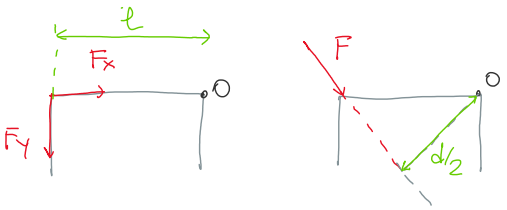
$$M''_{CP} = -Q\,\ell/2 < 0$$

CASO III



DCL PREL.

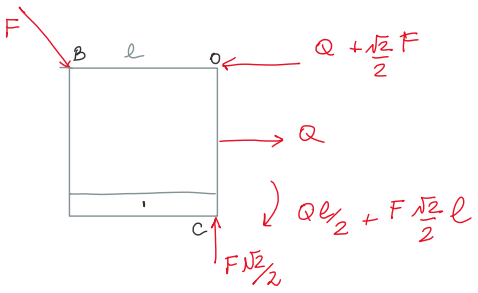


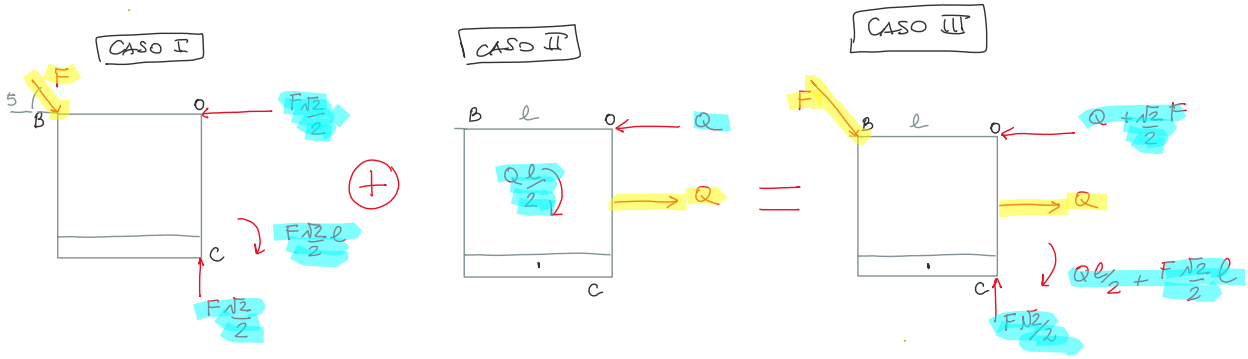


$$\begin{cases} x: & F\frac{\sqrt{2}}{2} + R_O^{III} + Q = 0 \\ y: & -F\frac{\sqrt{2}}{2} + R_{CP}^{III} = 0 \\ O\circlearrowleft: & F\frac{\sqrt{2}}{2}\ell + Q\frac{\ell}{2} + M_{CP}^{III} = 0 \end{cases}$$

$$\begin{cases} R_O^{III} = -Q - \frac{\sqrt{2}}{2}F < 0 \\ R_{CP}^{III} = F\sqrt{2}/2 \\ M_{CP}^{III} = -Q\frac{\ell}{2} - F\frac{\sqrt{2}}{2}\ell < 0 \end{cases}$$

DCL DEF.





PSE ⇒ Le Eq^ni CS sono lineari rispetto ai carichi

⇓

forze/momenti ATTIVI e REATTIVI