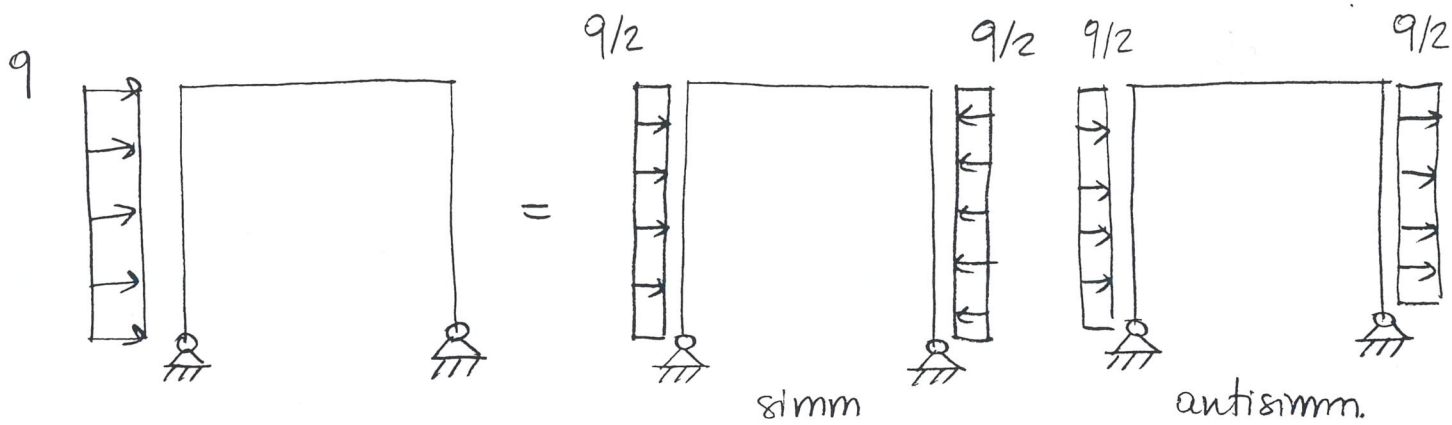
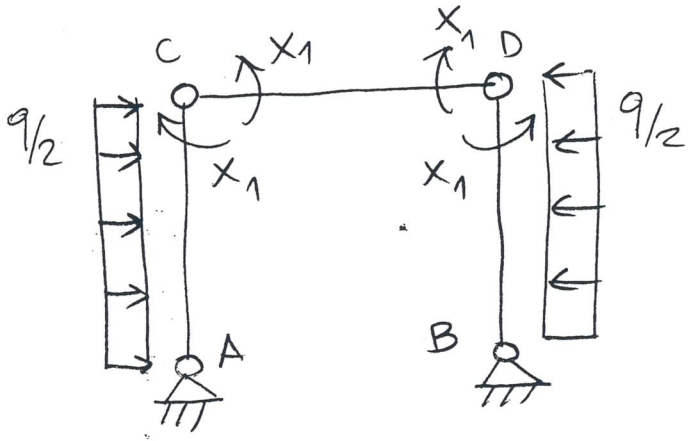
# Struttura simmetrica 1 volta iperstatica, carico generico




## 1) carico simmetrico (nodi fissi)




$\varphi_{C'} = \varphi_{C''}$ (condizione di congruenza)

$$\varphi_{C'} = \frac{\frac{q}{2}\ell^3}{24EI} - \frac{X_1\ell}{3EI}$$

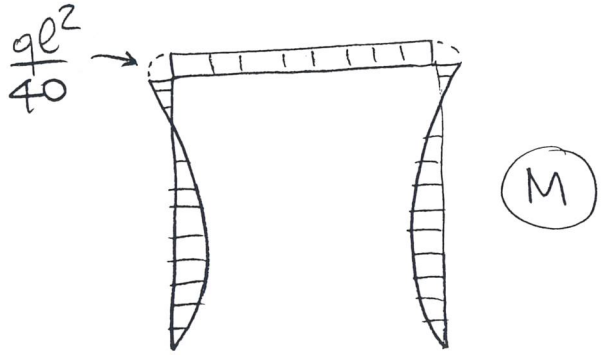
$$\varphi_{C''} = \frac{X_1\ell}{3EI} + \frac{X_1\ell}{6EI} = \frac{X_1\ell}{2EI}$$

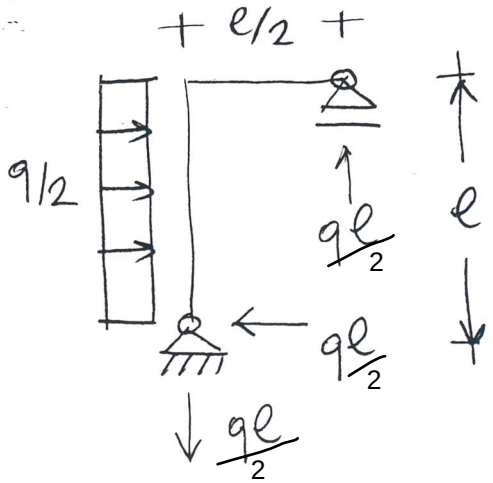
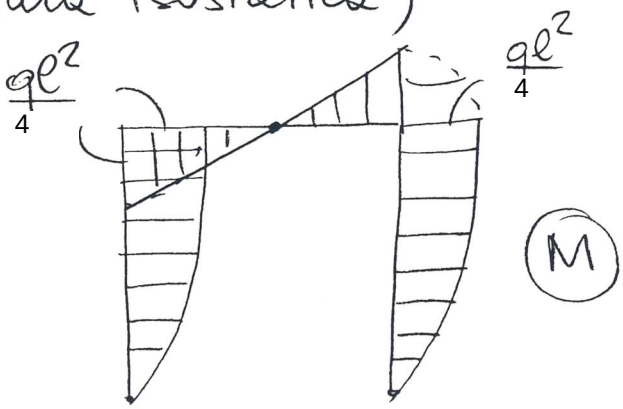
Pertanto:

$$\frac{q\ell^3}{48EI} = \frac{5}{6}\frac{X_1\ell}{EI}$$

da cui

$$X_1 = \frac{q\ell^2}{40}$$




## 2) carico antisimmetrico (struttura isostatica)