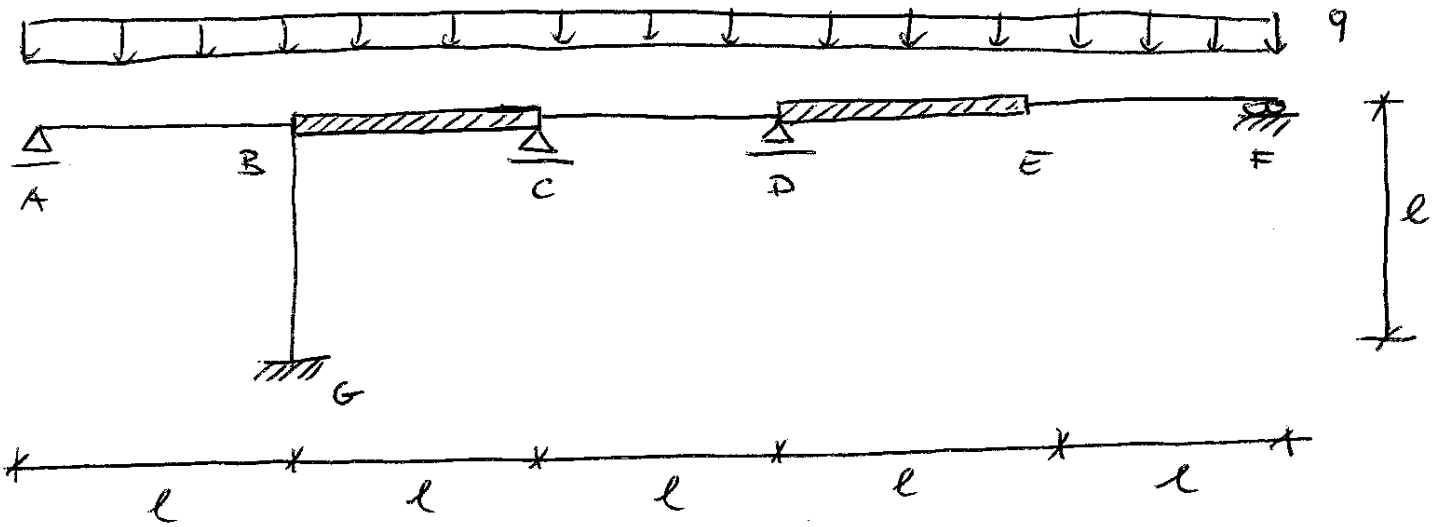
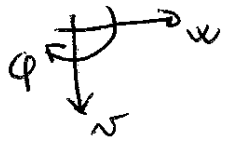


La struttura ha 1 mov. ind.

I vincoli esterni forniscono info cinematiche su

$$v_A, v_C, v_D, v_F, \varphi_F, v_G, w_G, \varphi_G$$



I vincoli interni di indef. assiale forniscono rel. cinemat. che (1 rel. per asta)

$$w_A \sim w_B \sim w_C \sim w_D \sim w_E \sim w_F$$
$$v_B \sim w_G$$

I vincoli interni di indef. flessionale forniscono rel. cinematiche (2 per asta)

$$\varphi_B \sim \varphi_C \sim \frac{v_C - v_B}{l}$$

$$\varphi_D \sim \varphi_E \sim \frac{v_E - v_D}{l}$$

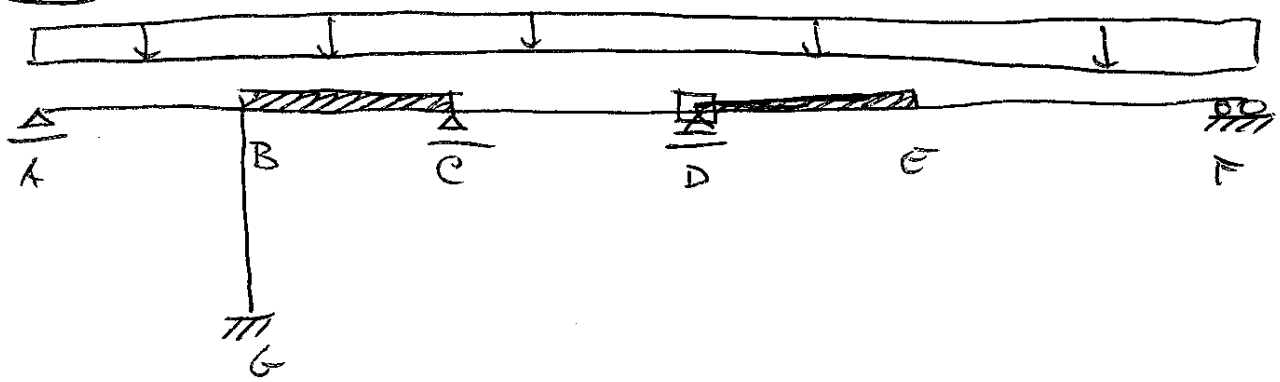
Li hanno inoltre in formazioni statiche su

- AB è noto il momento in A dalla sola statica, dunque il movimento correlativo φ_A è dipendente.
- BG è noto il taglio in B dalla sola statica, dunque il movimento correlativo w_B è dipendente.

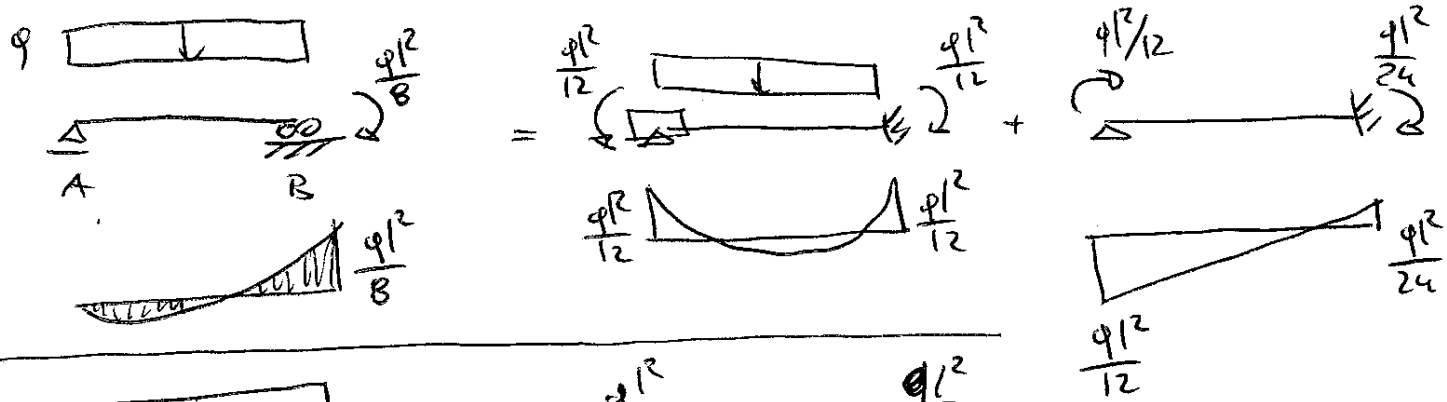
Resta dunque un solo m. ind. a scelta fra $\varphi_D, \varphi_E, v_E$.

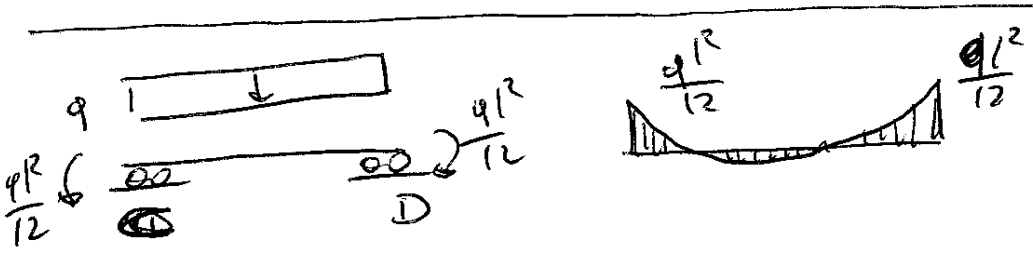
Si prosegue considerando $\boxed{\varphi_D}$

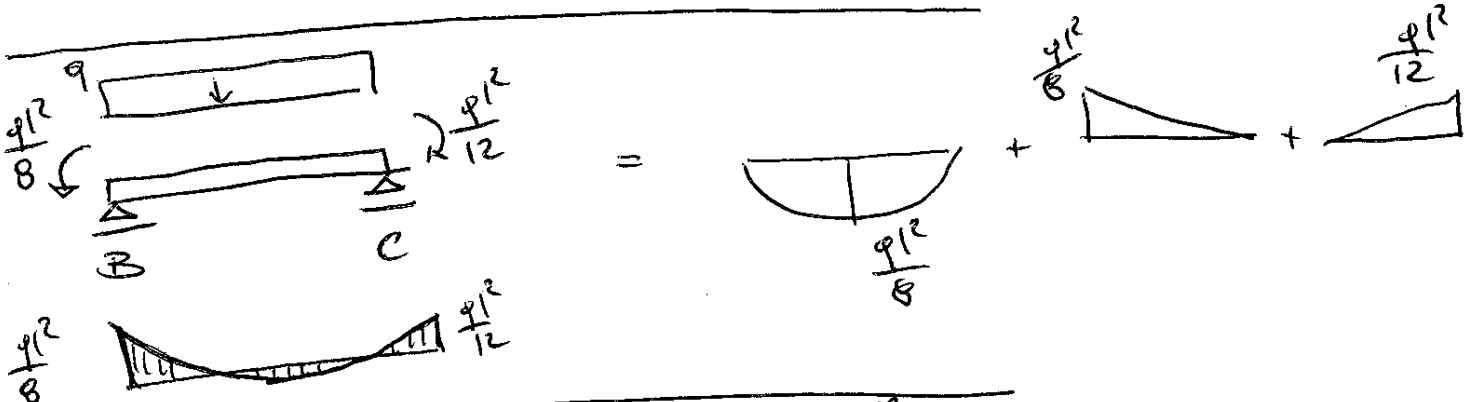
Foro I

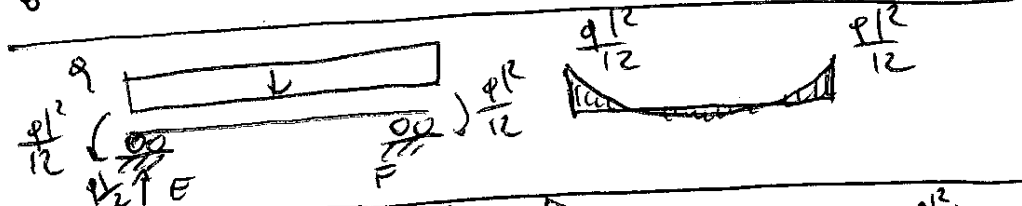


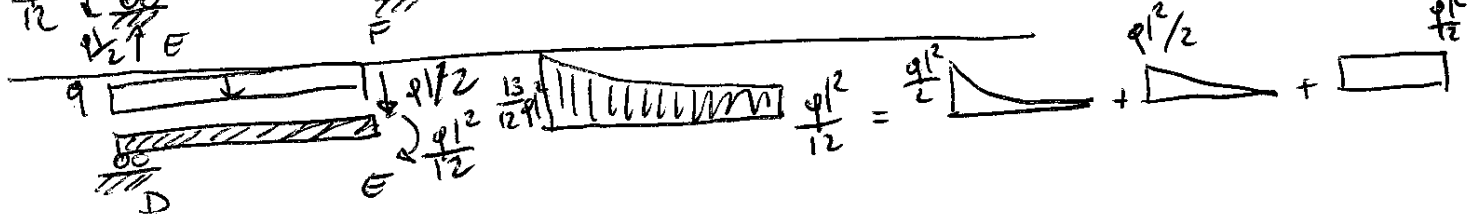
Si osserva che i tratti rigidi offrono e.c. cinematica ai tratti deformabili; viceversa, i tratti def. costituiscono e.c. statica per i tratti rigidi.



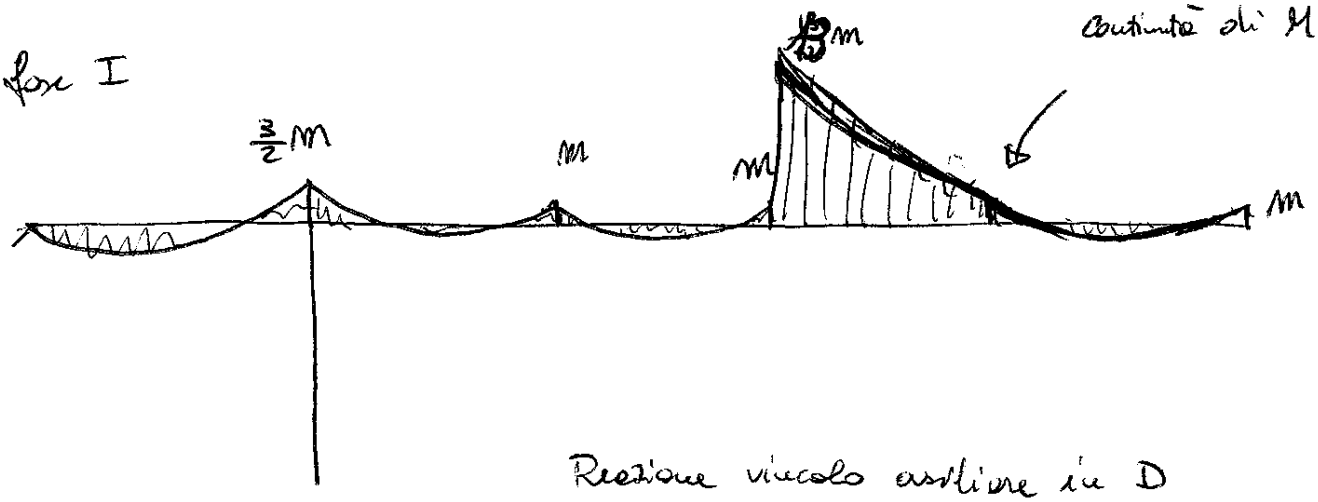








for I

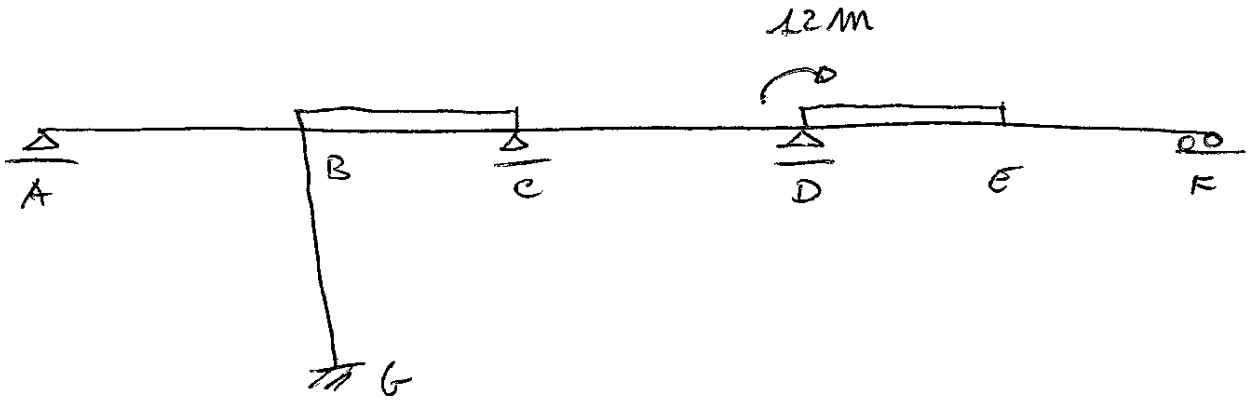


Reazione vincolo cedevole in D

$M = ql^2/12$

---

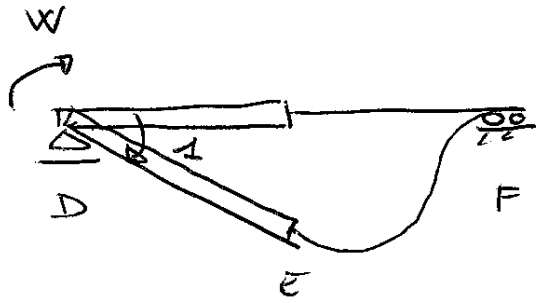
for II



AB e BG sono scarichi.

va determinata la rigidezza alla rot. in D di DEF.

Per def. la rig. alla rot. in D è la coppia necessaria in D a produrre la rotazione unitaria

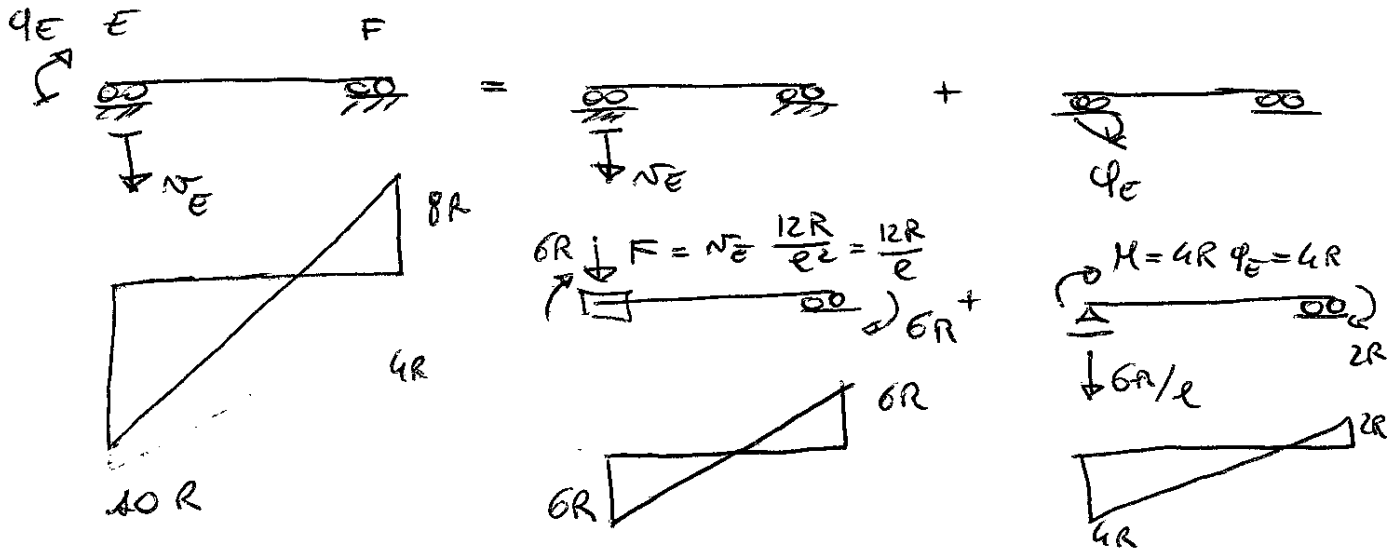


- La cinematica di DE è nota:

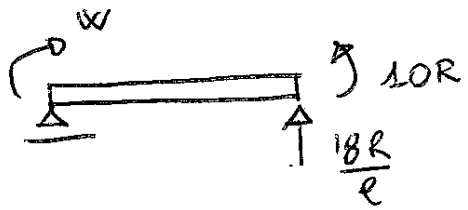
$$\varphi_D = \varphi_E = \frac{v_E - v_D}{\ell}$$

dunque $\varphi_D = 1 \rightarrow \varphi_E = 1 \rightarrow \frac{v_E - 0}{\ell} = 1 \Rightarrow v_E = \ell$

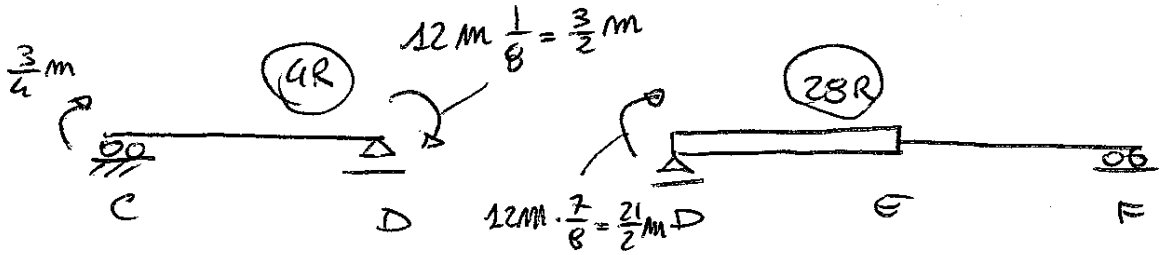
- Del tratto EF è noto il legame costitutivo:



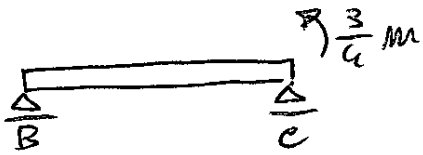
- Equilibrio di DE



$$\boxed{W = 28R}$$



$W_{tot} = 32R$ $\quad \varphi_{DC} = \frac{4}{32} = \frac{1}{8}$ $\quad \varphi_{DE} = \frac{7}{8}$



$\varphi_D = \frac{12\,M}{32R} = \frac{3}{8}\frac{m}{R}$

fox II