

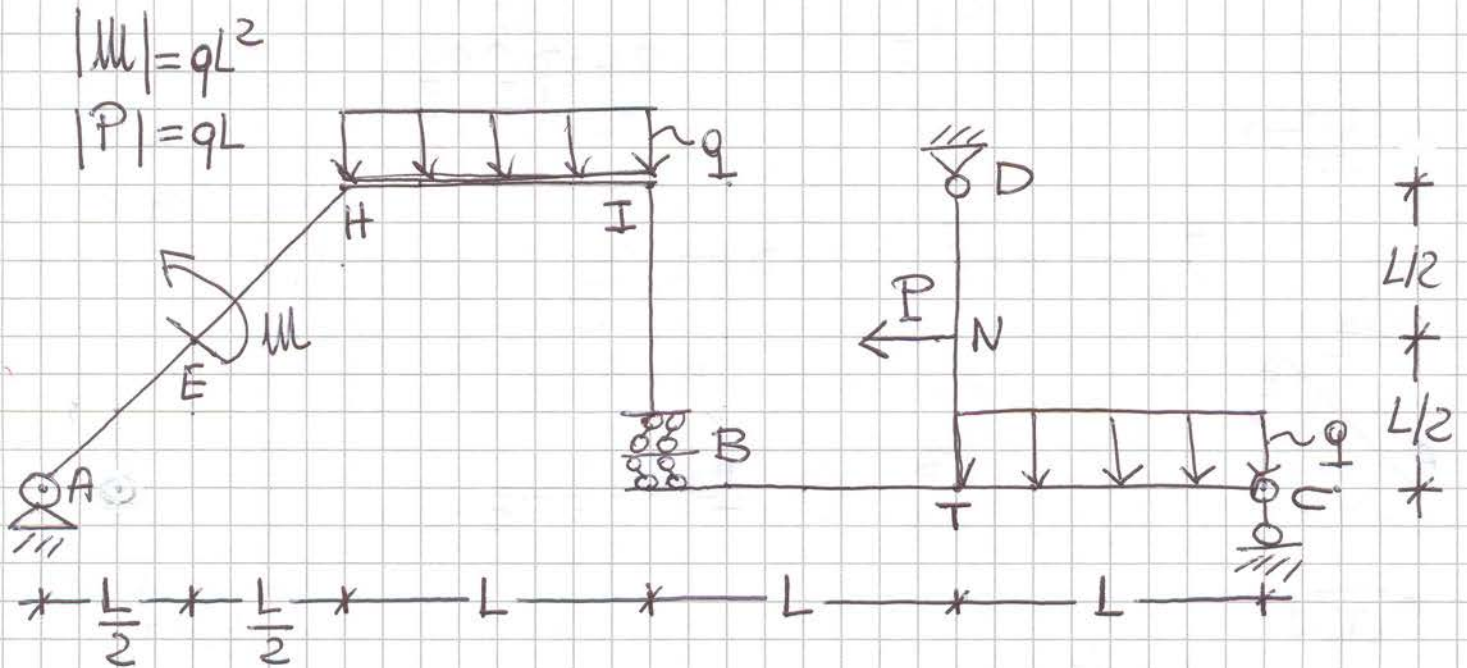
PROVA SCRITTA del 3/07/2013

1

PROF. P. FUSCHI - STATICA e MECC. delle STRUTTI. (cdL Arch. SCBAA)

PROF. A. PISANO - STATICA (cdL Arch. CU)

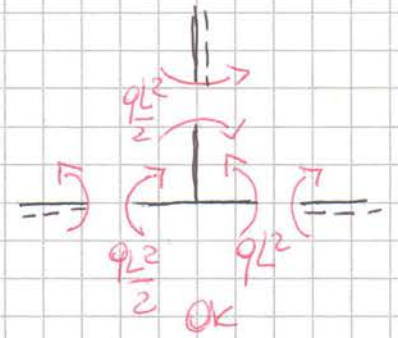
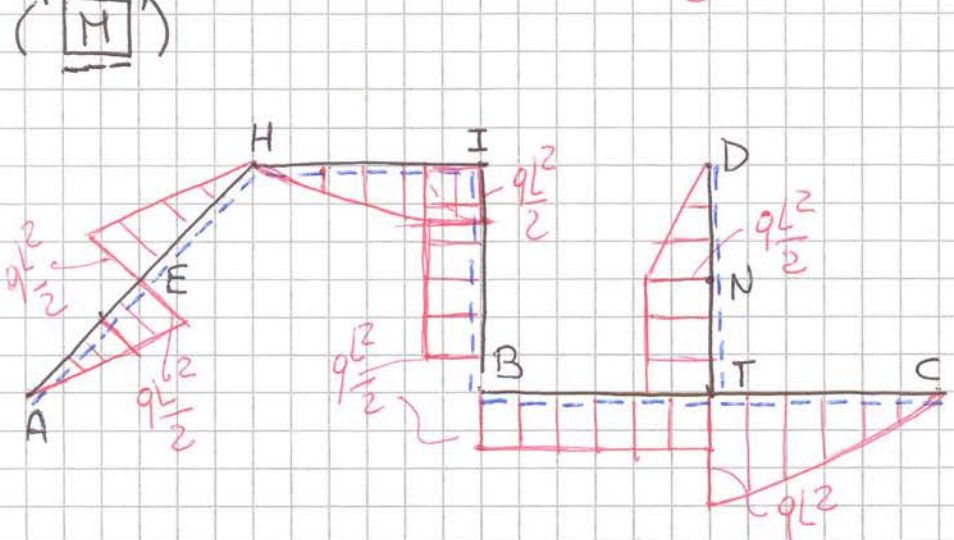
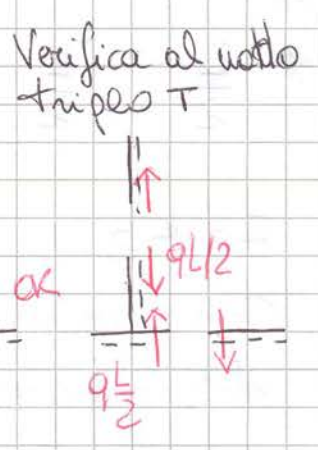
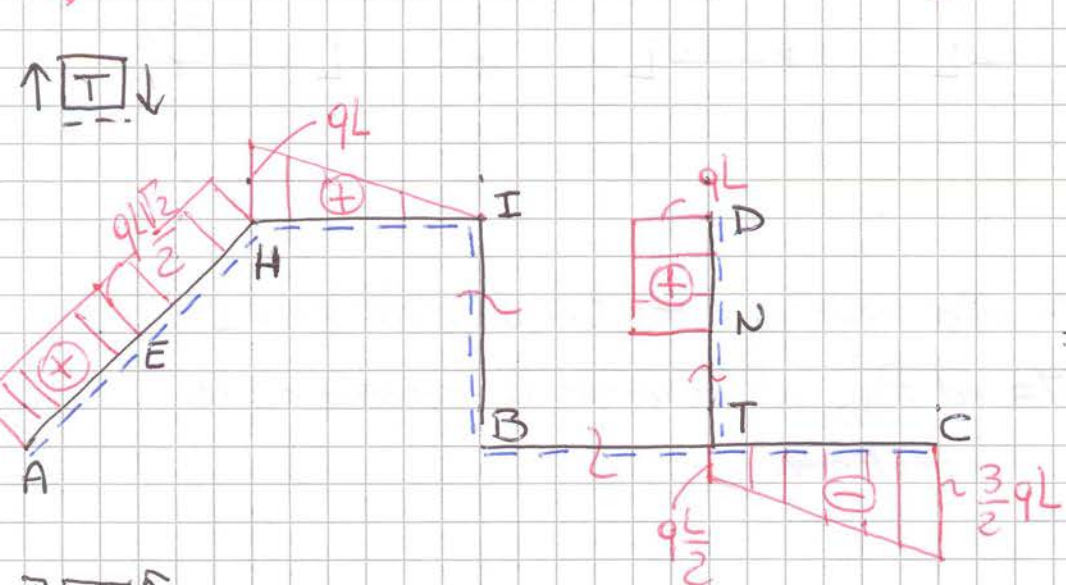
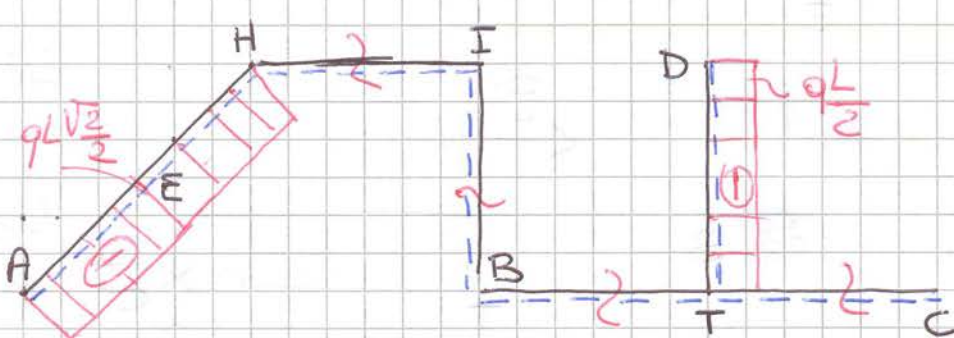
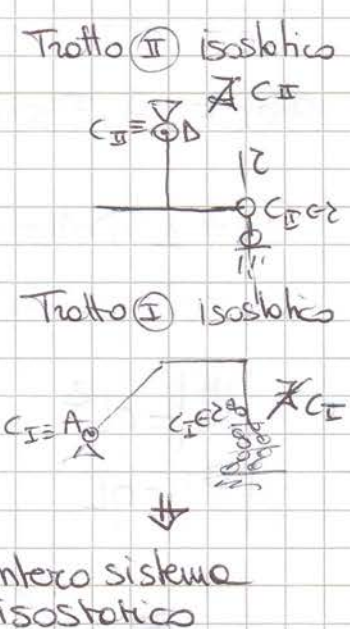
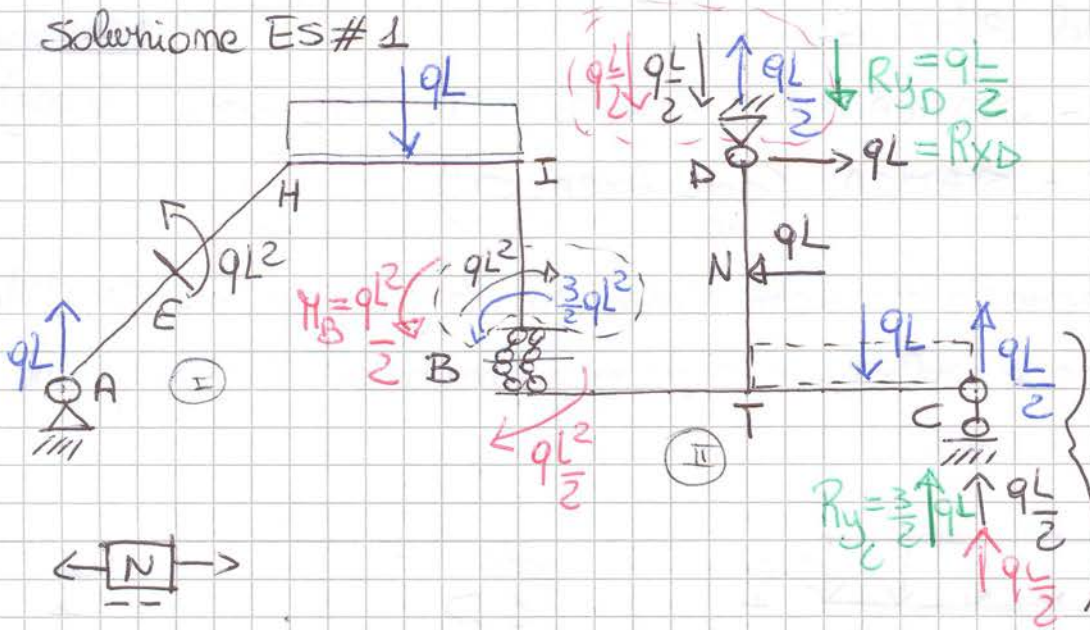
ES#1 Determinare le reazioni vincolari, le funzioni caratteristiche di sollecitazione e i relativi diagrammi per la struttura seguente



ES#2

Con riferimento alla struttura isostatica dell' ES#1, determinare π_B ed π_D utilizzando le equazioni di equilibrio dei cinematici.

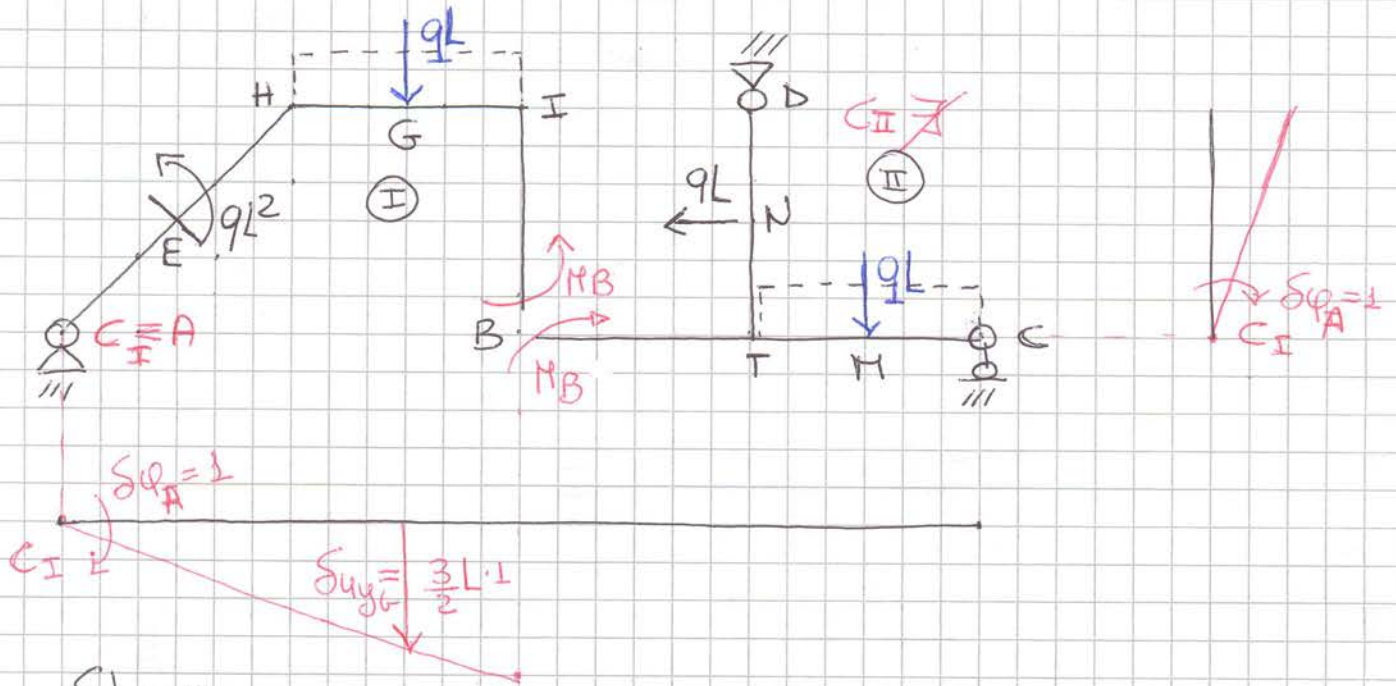
Soluziome Es# 1



Soluzioni ES #2

$M_B = ?$

$\delta h = \delta \varphi_A = 1$



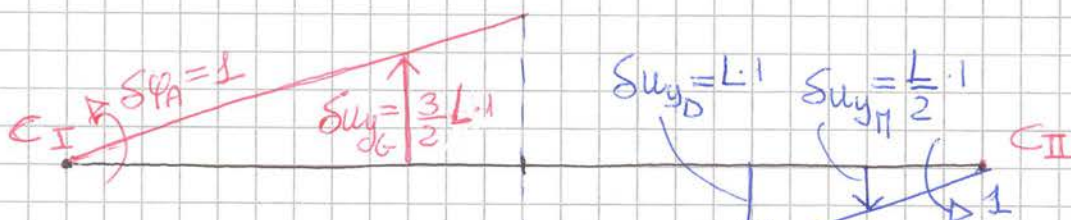
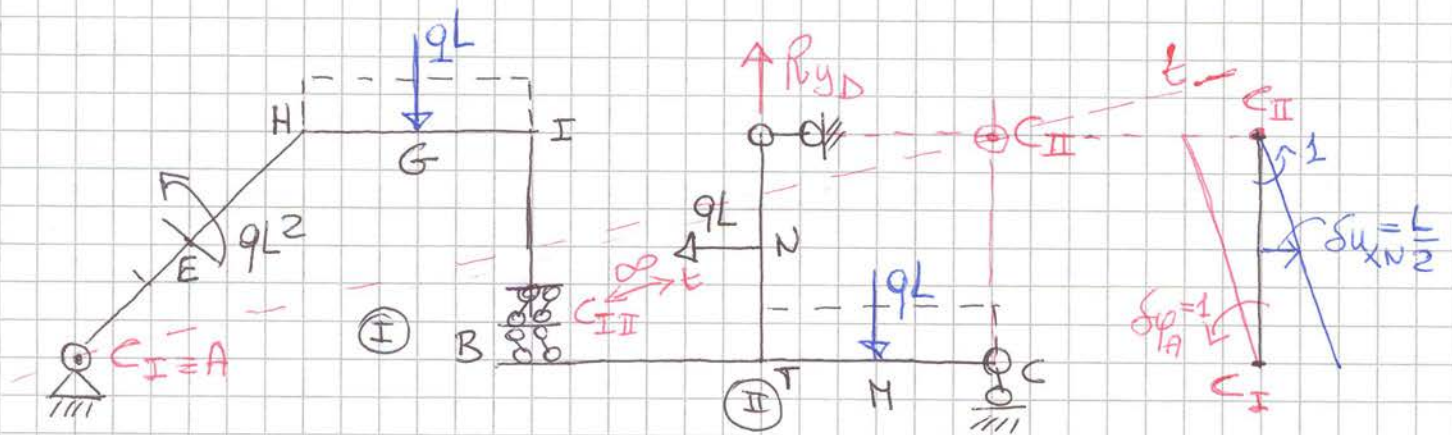
$\delta L = 0$

$$-qL^2 \cdot 1 + \frac{3}{2}qL^2 \cdot 1 - M_B \cdot 1 = 0 \Rightarrow \boxed{M_B = \frac{qL^2}{2}}$$

$R_{yD} = ?$

$\delta h = \delta \varphi_A = 1$

$C_{II} \rightarrow t \Rightarrow$ non consente rotazioni relative



$\delta L = 0$

$$qL^2 \cdot 1 - \frac{3}{2}qL^2 \cdot 1 - R_{yD} \cdot 1 + \frac{qL^2}{2} \cdot 1 - \frac{qL^2}{2} \cdot 1 = 0 \Rightarrow \boxed{R_{yD} = -\frac{qL}{2}}$$

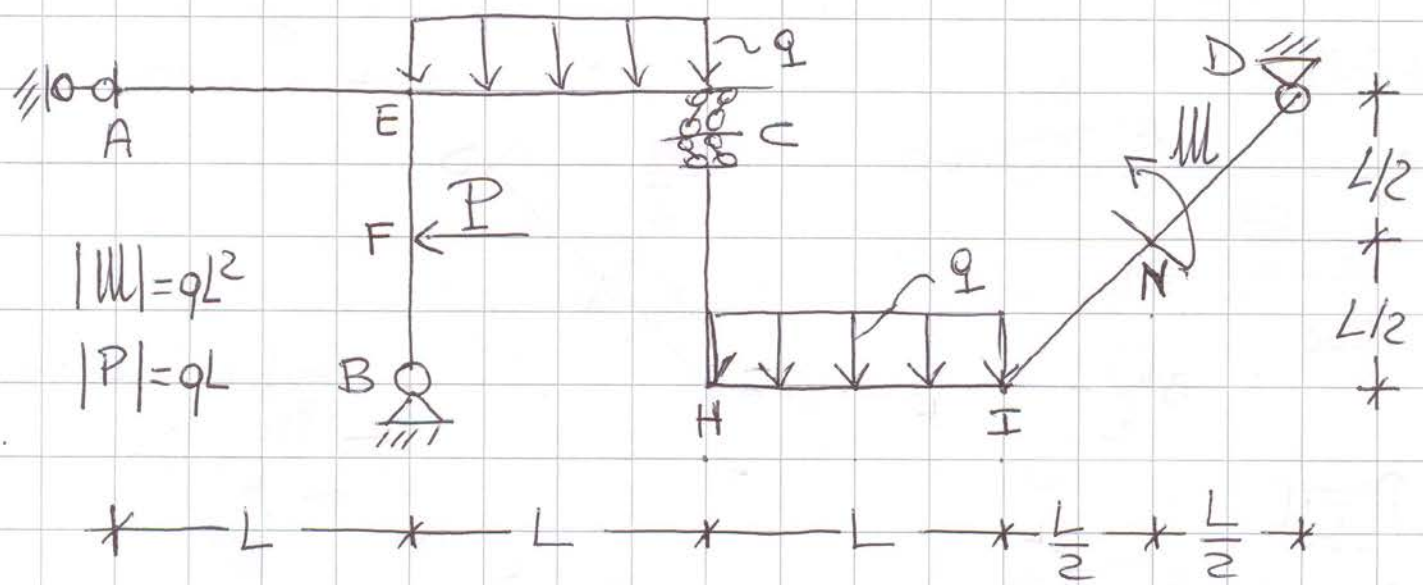
verso opposto *

PROVA SCRITTA DEL 3/07/2013

PROF. P. FUSCHI - STATICA e MECC. delle STRUTT. (coll.: Arch - SCBAA)

PROF. A. PISANO - STATICA (cdL ARCH - CU)

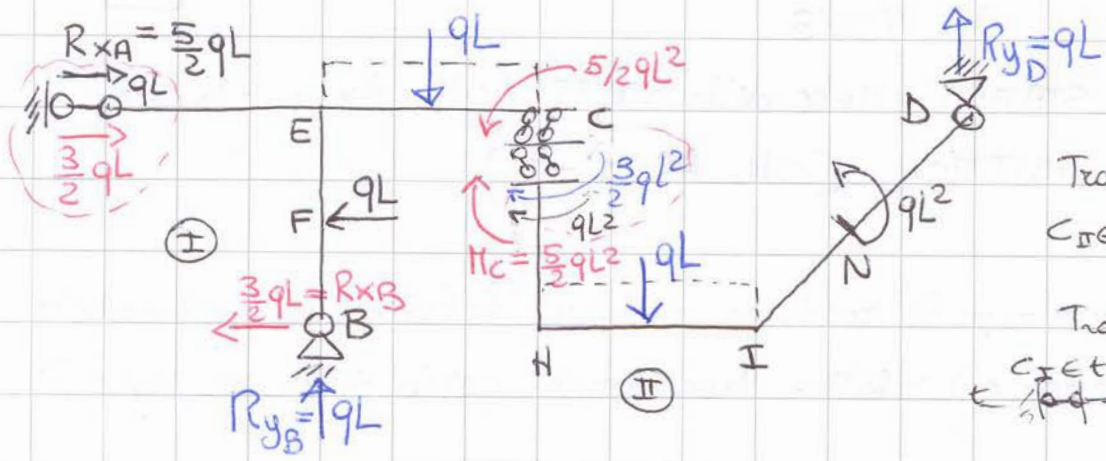
ES #1 Determinare le reazioni vincolari, le funzioni caratteristiche di sollecitazione e i relativi diagrammi per la struttura seguente:



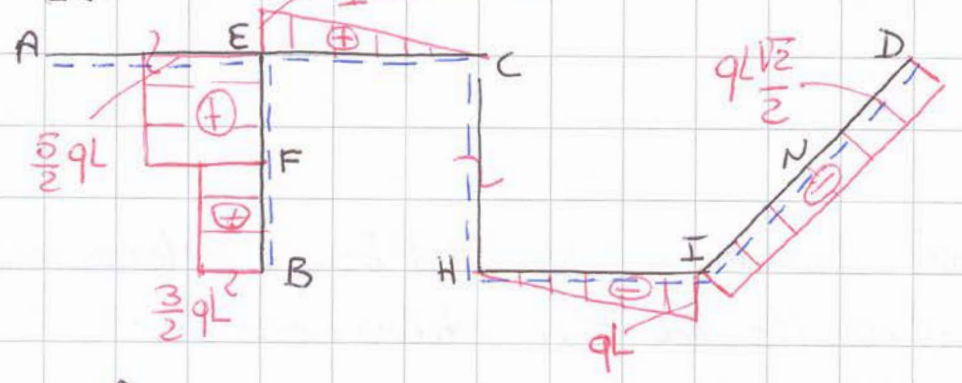
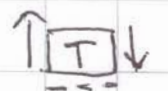
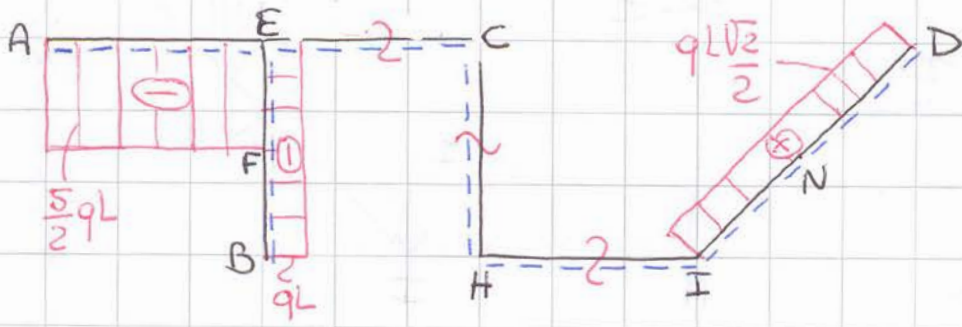
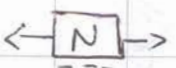
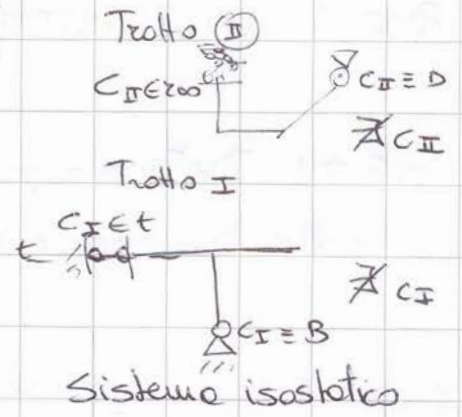
ES #2

Con riferimento alla struttura isostatica dell'ES #1 determinare le reazioni vincolari M_c ed R_{xA} utilizzando le equazioni di equilibrio dei cinematici.

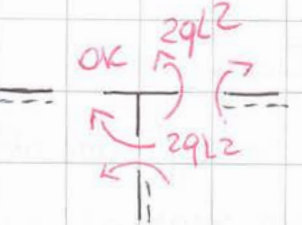
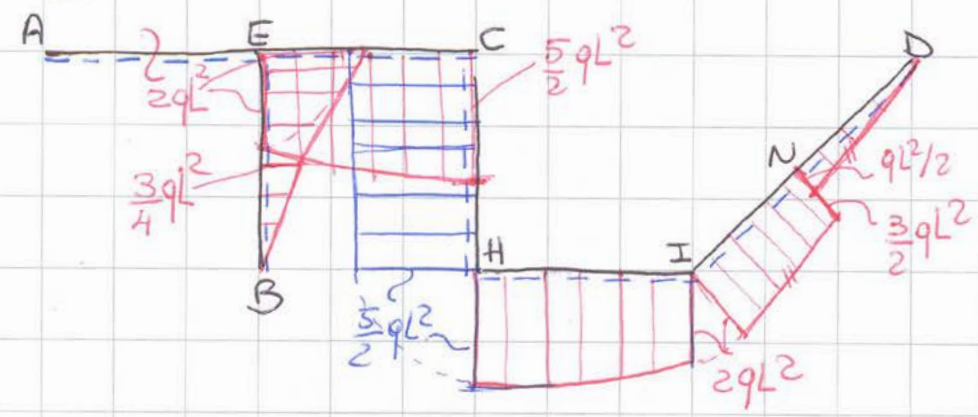
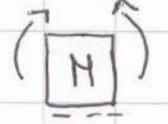
Soluzione ES#1



AC: $\rho = 6 - (1+2+1+2) = 0$

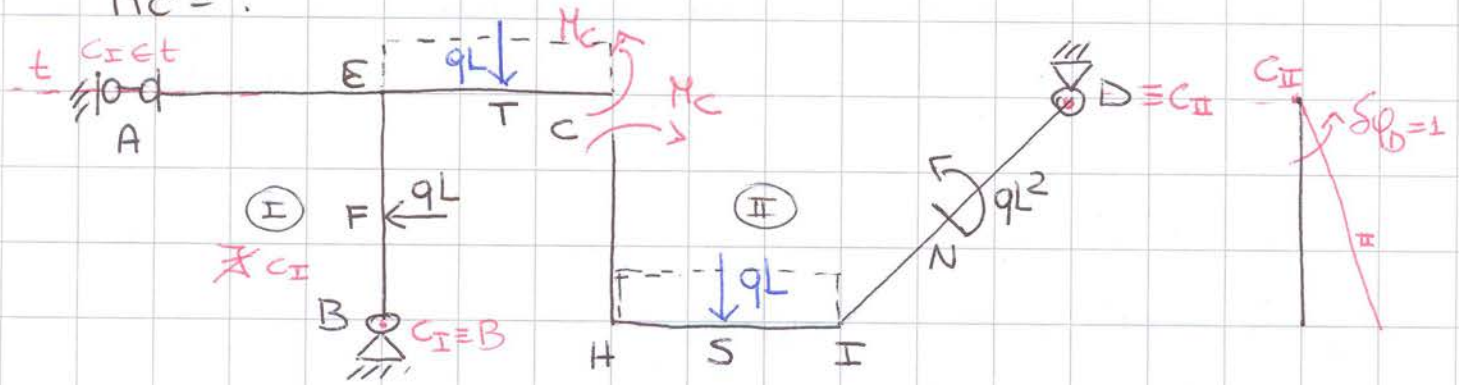


Verifica al modo E

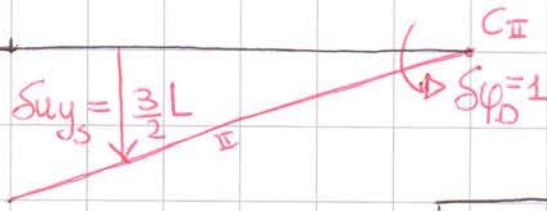


Soluzioni ES#2

$M_C = ?$



$\delta h = \delta \varphi_D = 1$

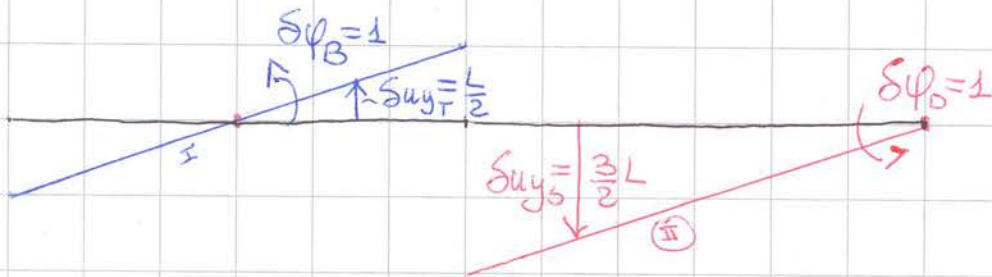
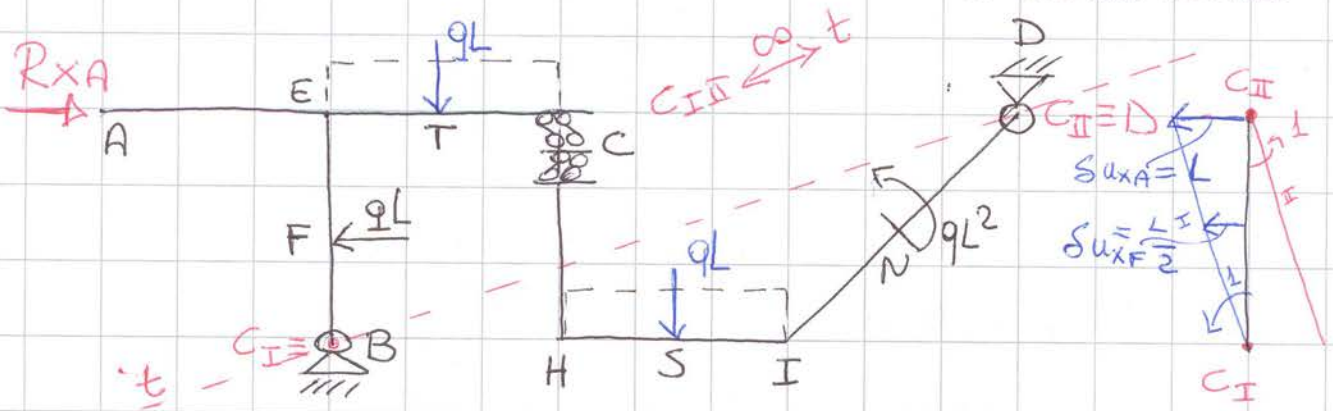


$\delta L = 0 \Rightarrow -M_C \cdot 1 + \frac{3}{2} qL^2 \cdot 1 + qL^2 \cdot 1 = 0 \Rightarrow \boxed{M_C = \frac{5}{2} qL^2} \text{ OK}$

$R_{XA} = ?$

$\delta h = \delta \varphi_B = 1$

poiché $C_{II} \infty$ non sono consentite rotazioni relative



$\delta L = 0$

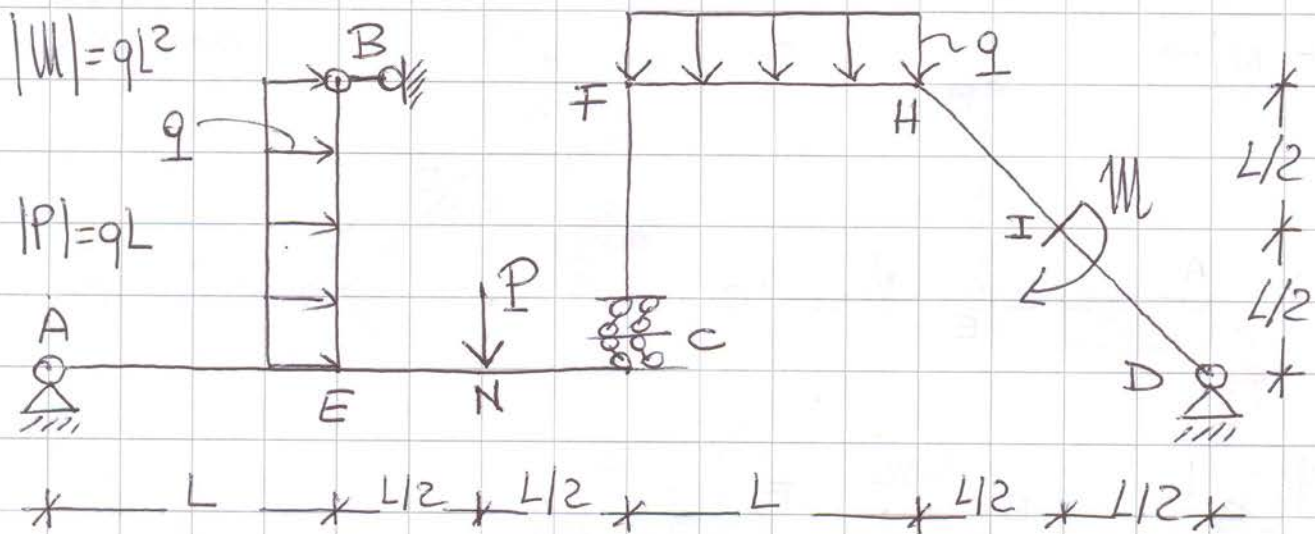
$-R_{XA} \cdot L + \frac{qL^2}{2} - \frac{qL^2}{2} + \frac{3}{2} qL^2 + qL^2 = 0 \Rightarrow \boxed{R_{XA} = \frac{5}{2} qL} \text{ OK}$

PROVA SCRITTA del 3/07/2013

3

PROF. P. FUSCHI - STATICA e MECC. delle STRUTT. (cdL Arch-SCBAA)
PROF. A. PISANO - STATICA (cdL Arch CU)

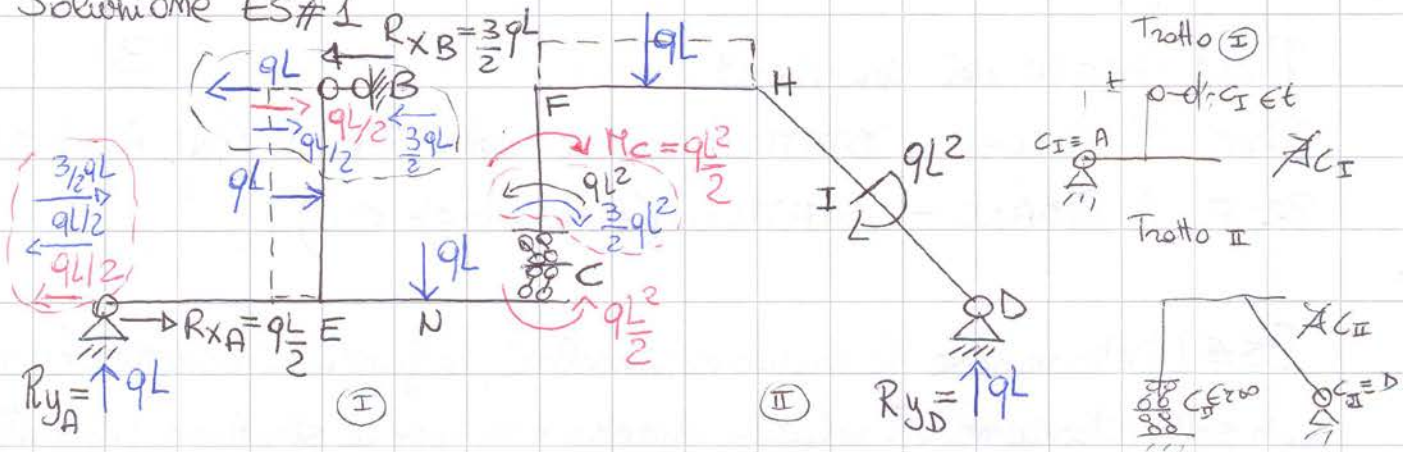
ES#1 Determinare le reazioni vincolari, le funzioni caratteristiche di sollecitazione e i relativi diagrammi per la struttura seguente



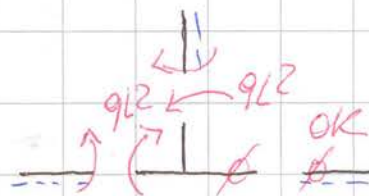
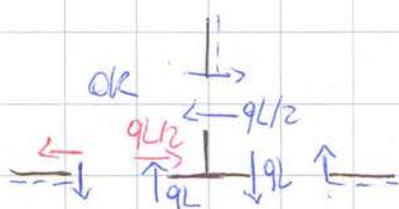
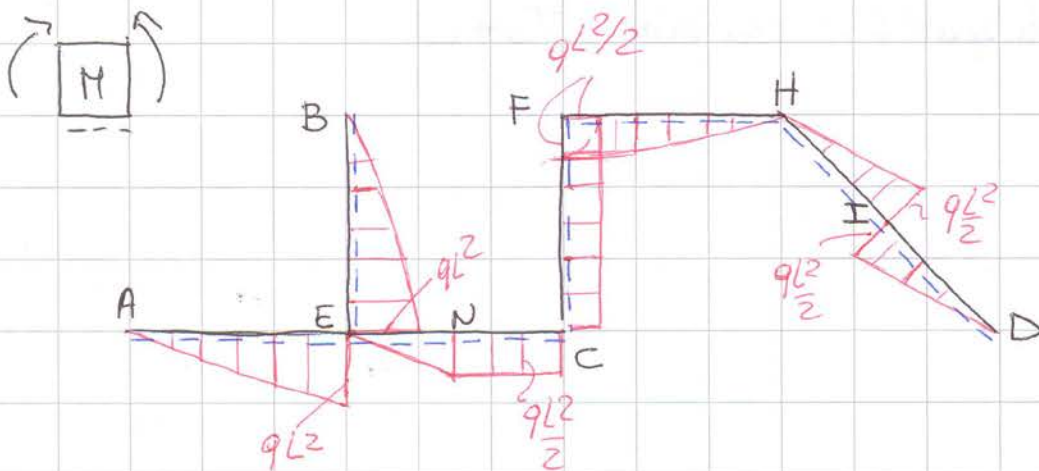
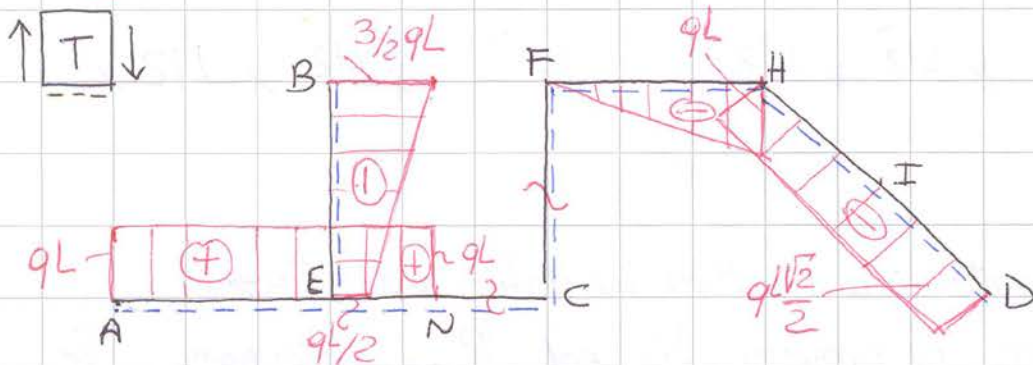
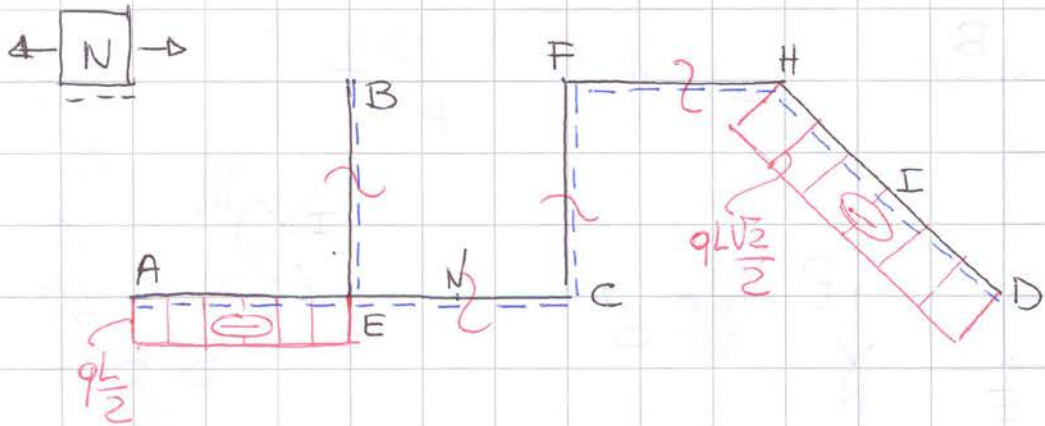
ES#2

Con riferimento alla struttura isostatica dell'ES#1, determinare le reazioni M_C ed R_{xA} utilizzando le equazioni di equilibrio dei cinematismi.

Soluzioni ES#1

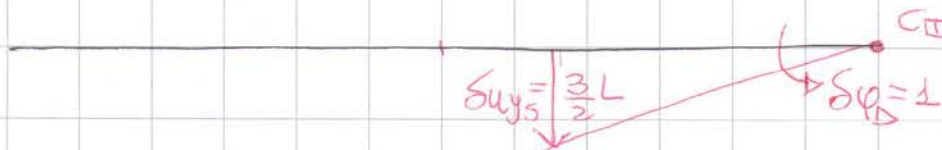
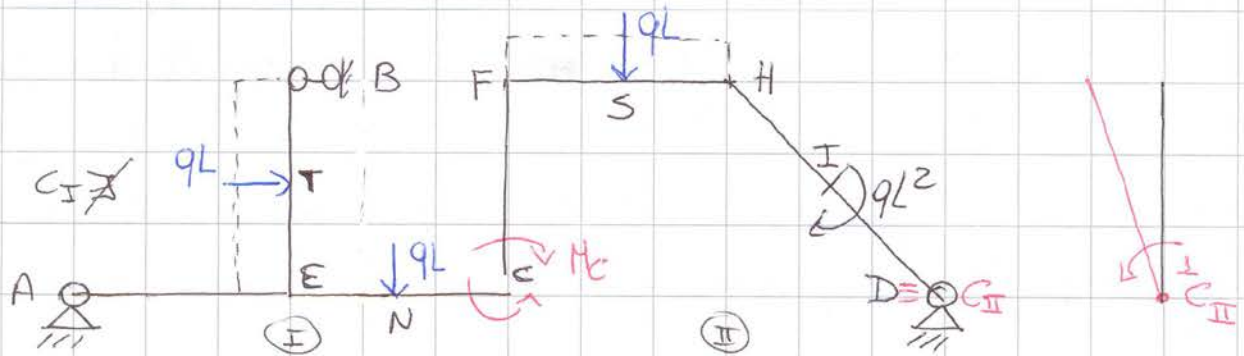


Intero sistema isostatico



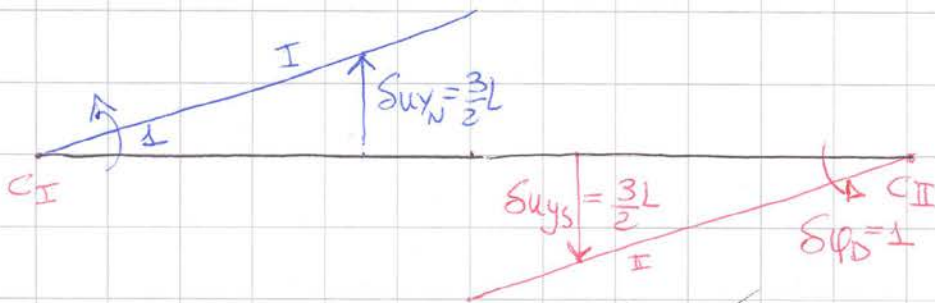
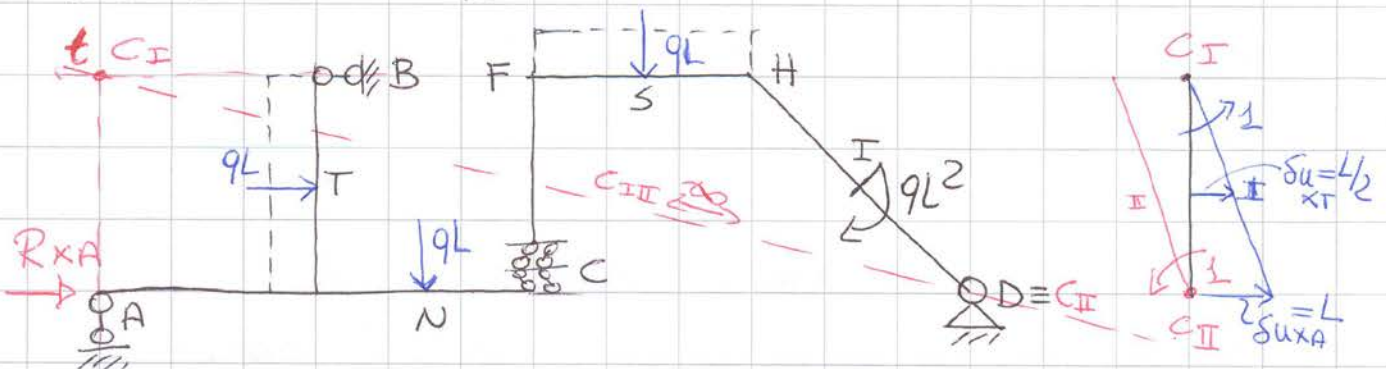
Soluzioni Es #2

$M_c = ? \quad \delta h = \delta \varphi_D = 1$



$\delta L = 0 \Rightarrow -M_c \cdot 1 + \frac{3}{2} qL^2 \cdot 1 - qL^2 \cdot 1 = 0 \Rightarrow \boxed{M_c = \frac{qL^2}{2}} \text{ ok}$

$R_{xA} = ? \quad \delta h = \delta \varphi_D = 1$



$\delta L = 0 \Rightarrow R_{xA} L + qL^2 \cdot \frac{1}{2} + \frac{3}{2} qL^2 + \frac{3}{2} qL^2 - qL^2 = 0$
 $\boxed{R_{xA} = \frac{qL}{2}} \text{ ok}$