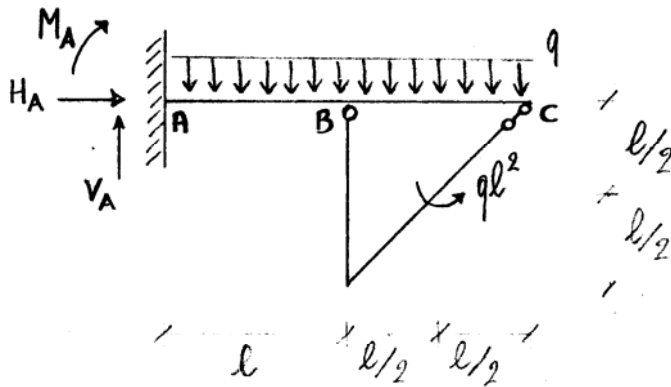


Soluzione esami

Prova scritta del 1/7/99

Risolvere la travatura in figura e tracciare i diagrammi delle caratteristiche di sollecitazione



$$M = 2$$

$$n_r = 3$$

$$n = 3$$

$$3 \cdot M = n_r + n$$

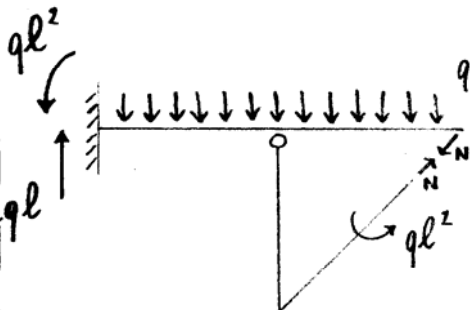
$$6 = 6$$

⇒ struttura isostatica se i vincoli sono ben disposti

Trovo le reazioni vincolari

$$\begin{cases} H_A = 0 \\ V_A - q \cdot 2l = 0 \\ M_A + q \cdot 2l \cdot l - ql^2 = 0 \end{cases} \quad \begin{cases} H_A = 0 \\ V_A = 2ql \\ M_A = -ql^2 \end{cases}$$

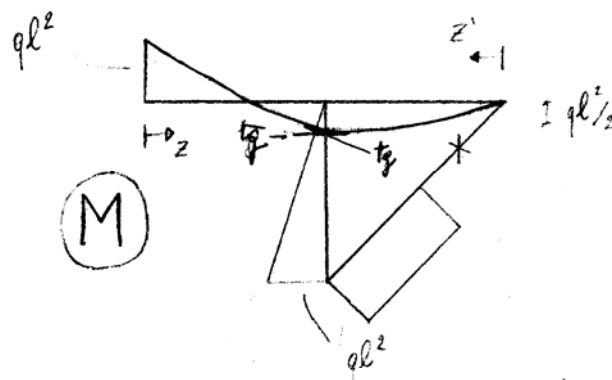
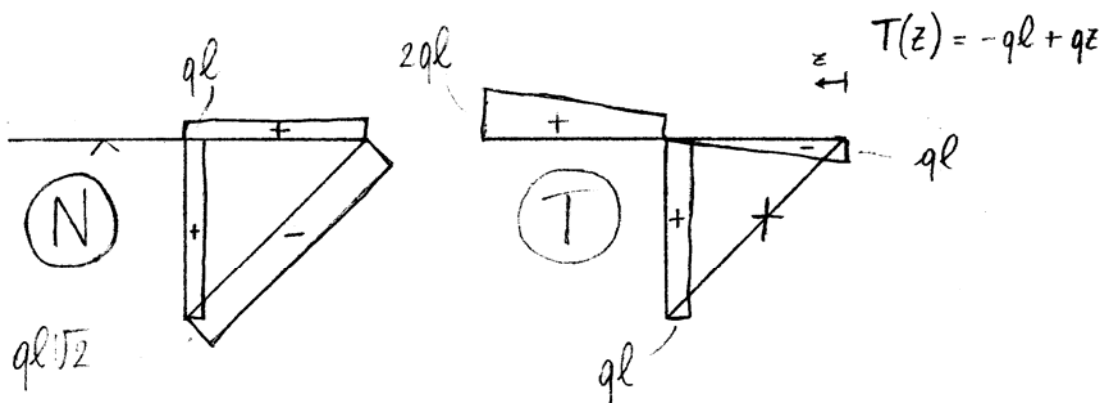
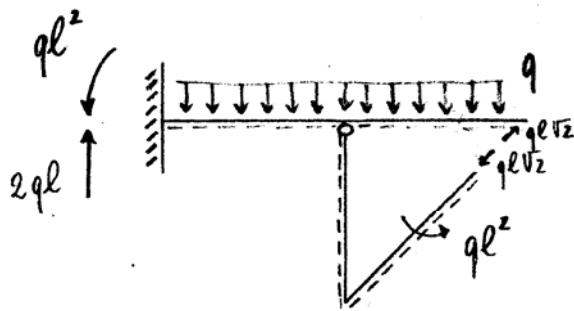
Determinazione dei diagrammi delle sollecitazioni, apro la struttura e utilizzo le equazioni ausiliarie:



$$M_B = 0 \quad ql^2 + N \frac{l}{2} \frac{2}{\sqrt{2}} = 0$$

$$N = -ql\sqrt{2} = -ql\sqrt{2}$$

Soluzioni e diagrammi delle sollecitazioni



$$M(z) = -ql^2 + 2qlz - q\frac{z^2}{2}$$

$$M'(z) = 2ql - qz = 0 \quad \text{per } z = 2l$$

$$M''(z) = -q < 0 \quad \text{MAX}$$

$$M(l) = -ql^2 + 2ql^2 - q\frac{l^2}{2} = q\frac{l^2}{2}$$

$$M(z') = qlz' - q\frac{z'^2}{2}$$

$$M'(z') = ql - qz' = 0 \quad z' = l$$

$$M''(z') = -q < 0 \quad \text{MAX}$$

$$M(l) = ql^2 - q\frac{l^2}{2} = q\frac{l^2}{2}$$