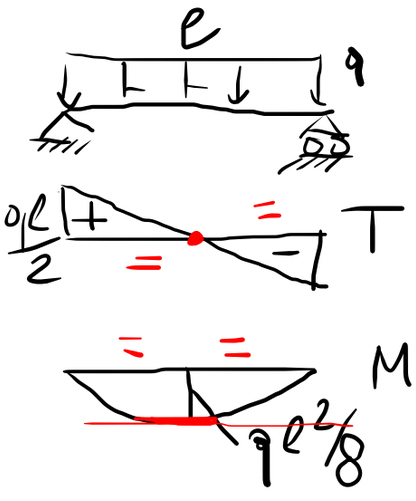
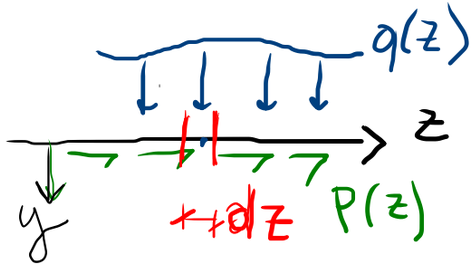
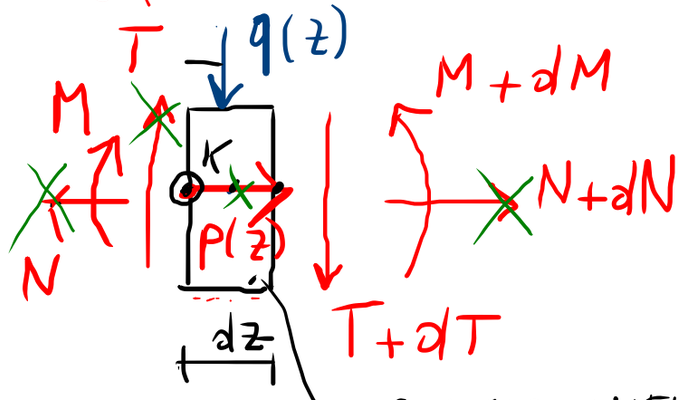
CARATTERISTICHE DELLA SOLLECITAZIONE, MTN

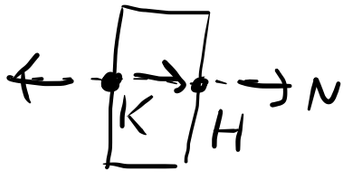
EQUAZ. INDEFINITE DI EQUILIBRIO





$[q, P] = [F/L]$





CONCIO INFINITESIMO (STUDIO L'EQUILIBRIO)

$\rightarrow: -N + p\,dz + N + dN = 0 \;;\; -p\,dz = dN$

$$\boxed{\frac{dN}{dz} = -p}$$

$+\uparrow: +T - q\,dz - T - dT = 0 \;;$

$$\boxed{\frac{dT}{dz} = -q}$$

ORDINE

$\overset{+}{\curvearrowleft K}: -M - q\,dz \cdot \frac{dz}{2} - (T + dT)\,dz + M + dM = 0 \;;\; -q\frac{(dz)^2}{2} - T\,dz - dT\,dz + dM = 0$

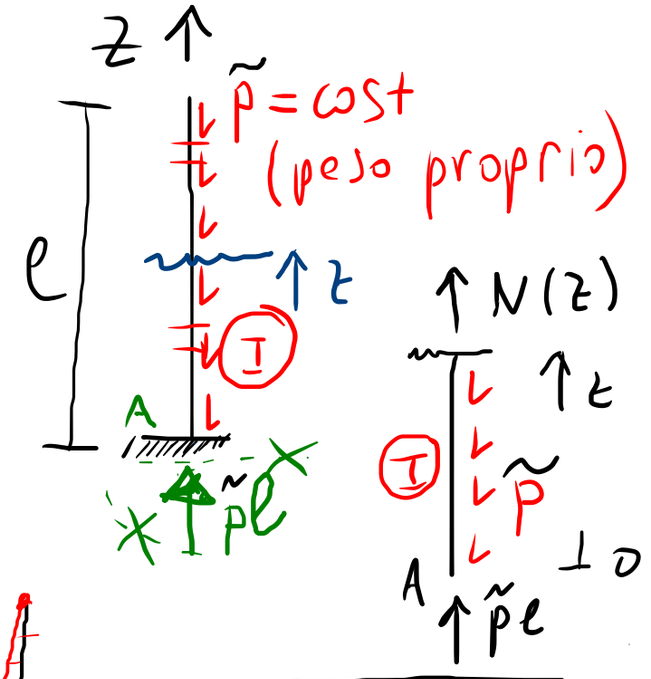
II I II I

INFINIT. DI ORD. SUP. TRASCURARE

$-T\,dz + dM = 0 \;;$

$$\boxed{\frac{dM}{dz} = T}$$

ES

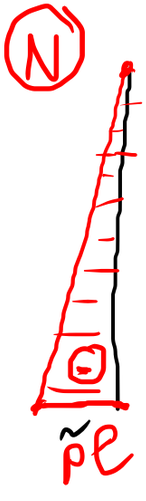


CALCOLA $N(z)$, DISEGNA IL DIAGRAMMA E VERIFICA CHE $\underline{N'(z) = -p(z)}$ (*)

$+\uparrow : +\tilde{p}\ell - \tilde{p}z + N(z) = 0$

$N(z) = -\tilde{p}\ell + \tilde{p}z = -\tilde{p}(\ell - z) < 0$ ($\tilde{p} > 0$)

COMPRESSIONE

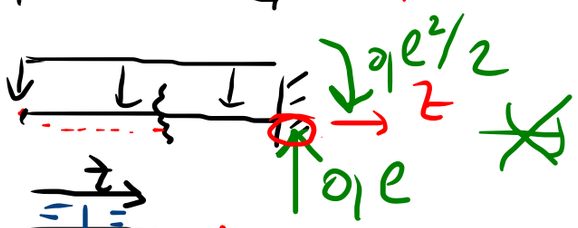


$\boxed{N'(z) = +\tilde{p}}$

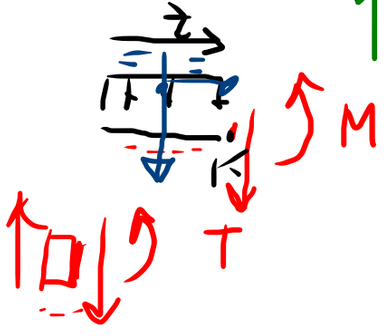
ATT! Nello sviluppo della I eq indefinito $\tilde{p}$ è positivo SE CONCORDE a z!

$\tilde{p} < 0$ e CORRISP. a $-p$. QUINDI l'EQ. (*) È SODDISFATTA.

ES

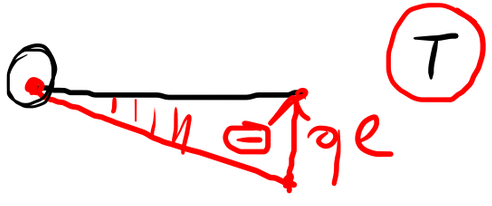


1) $M(z), T(z)$, 2) VER. $T'(z) = -q$; $M''(z) = T$



$\downarrow +$; $qz + T = 0$; $T = -qz$

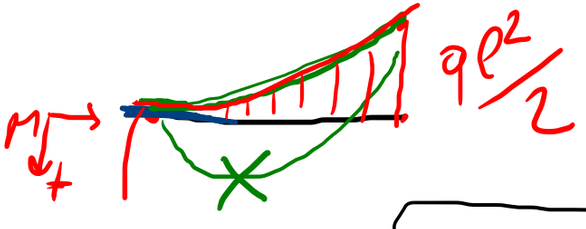
$\curvearrowright +$; $qz \cdot \frac{z}{2} + M = 0$; $M = -q\frac{z^2}{2}$



$T' = -q$ (ok)

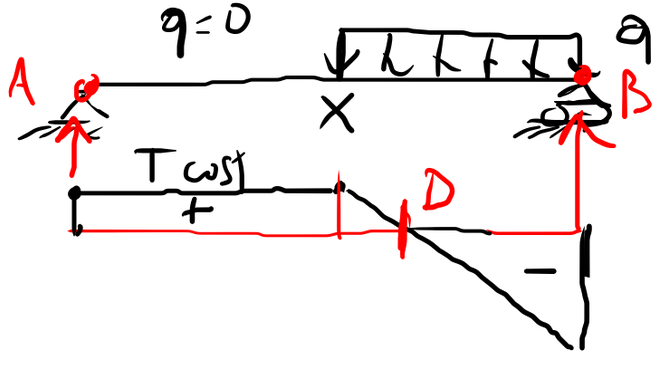
$T(z)$!! (ok)

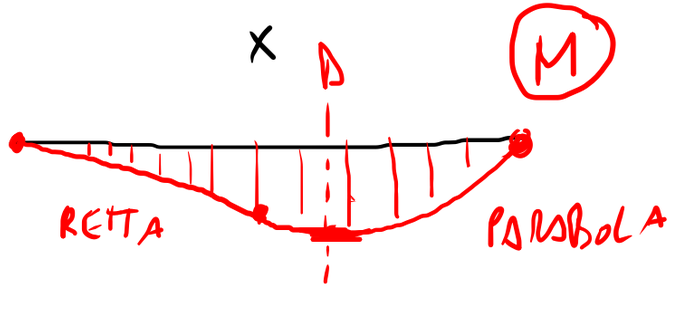
$M' = -2q\frac{z}{2} = -qz$



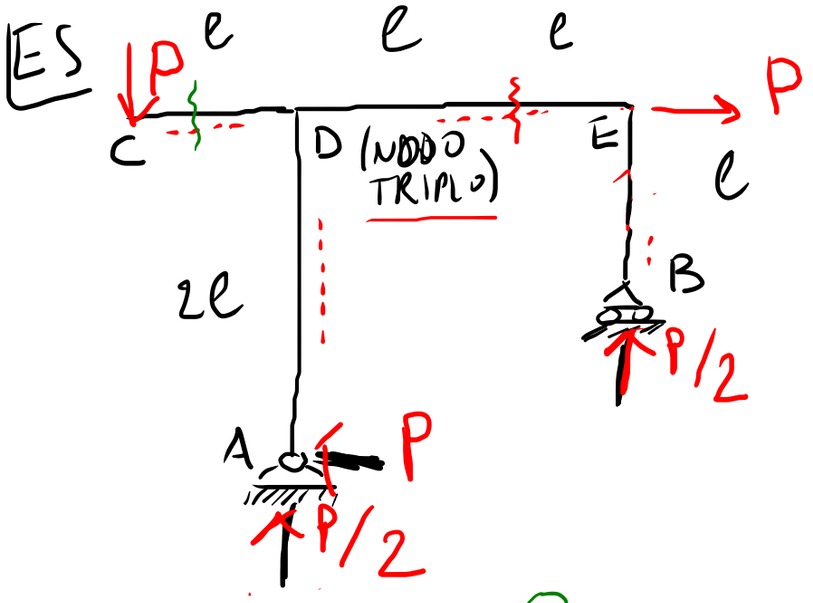
$T' = -\cancel{q}$

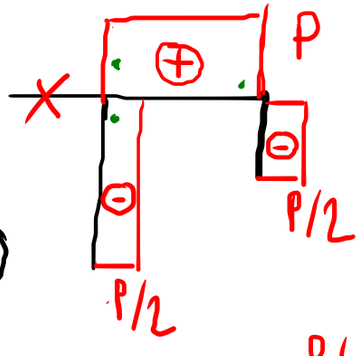
$M' = T$

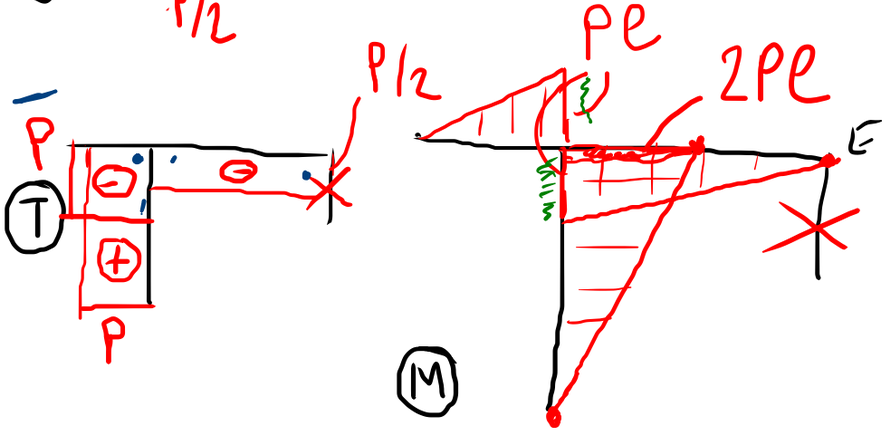




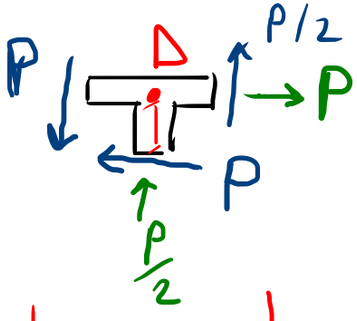
ES





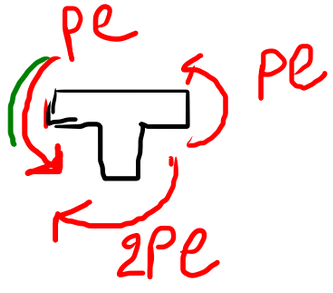


EQUIL. NODI D ed E



VERIFICO L'EQUILIBRIO

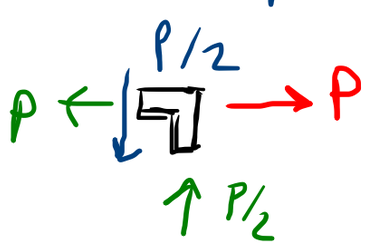
D



VERIFICO L'EQUIL.

OK

= N T ORIZZ



OK

E

M sempre nulli

OK