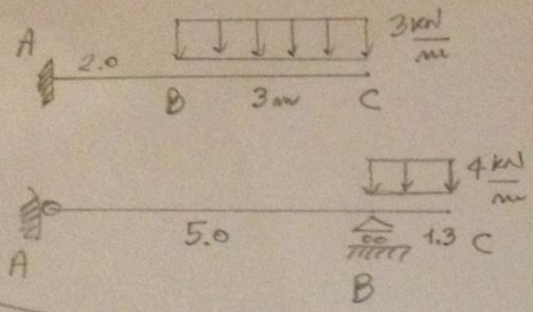
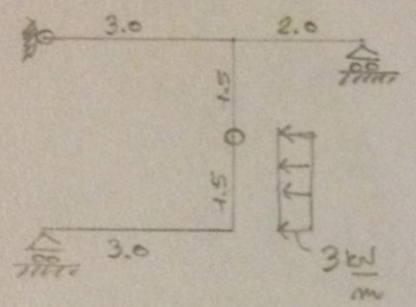
16/02/2015 COGNOME ____________ NOME ____________



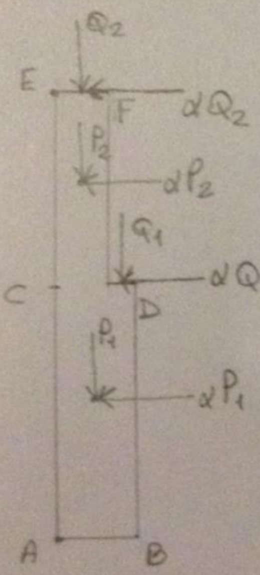
① Per ciascuno dei due esercizi determinare:

- R.V. ext
- Diagrammi quotati di T e M
- M(z) in BC con O ≡ C in uno dei due esercizi

②



- R.V. ext e int.
- Diagrammi quotati di N, T, M



$\gamma = 25\ \frac{kN}{m^2}$

$Q_1 = 12$ kN

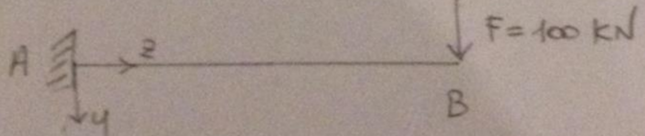
$Q_2 = 8$ kN

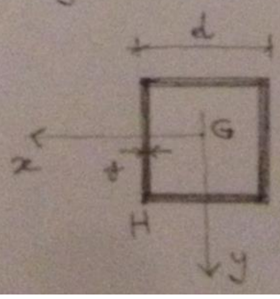
③

- Calcolo dei pesi propri P_1 (di ABCD) e P_2 (di CDEF)
- Valore di α che garantisce l'equilibrio alla rotazione di ABEF intorno ad A

Q_1 e αQ_1 applicati a 10 cm da D

Q_2 e αQ_2 applicati a metà di EF

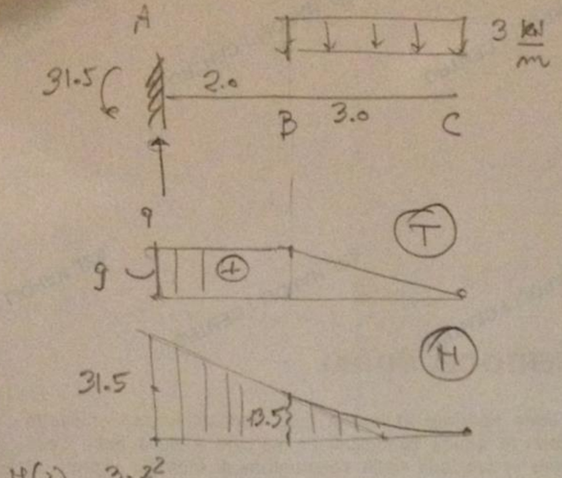




d = 50 cm

δ = 0,3 cm

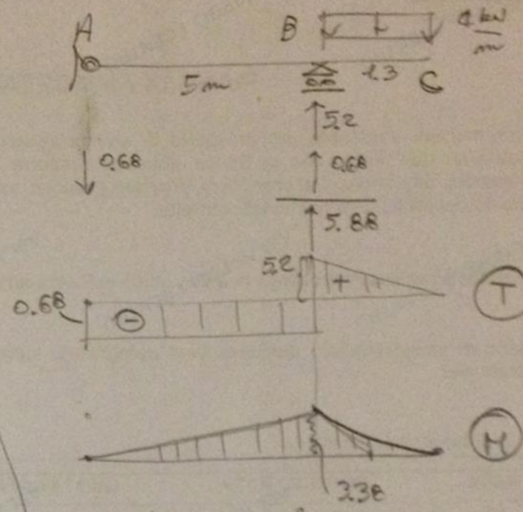
- I_x e I_y
- n-n e diagramma σ_z per $M = M_A$
- σ_z^{max}
- Un punto del nocciolo c.i.
- n-n e diagramma σ_z per N = −10 kN in H



$M(z) = -3 \cdot \frac{z^2}{2}$

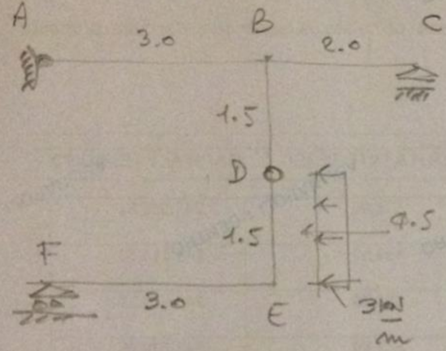
1

- R.V.
- Diagrammi quotati T, M
- M(z) in BC O ≡ C in uno dei due esercizi

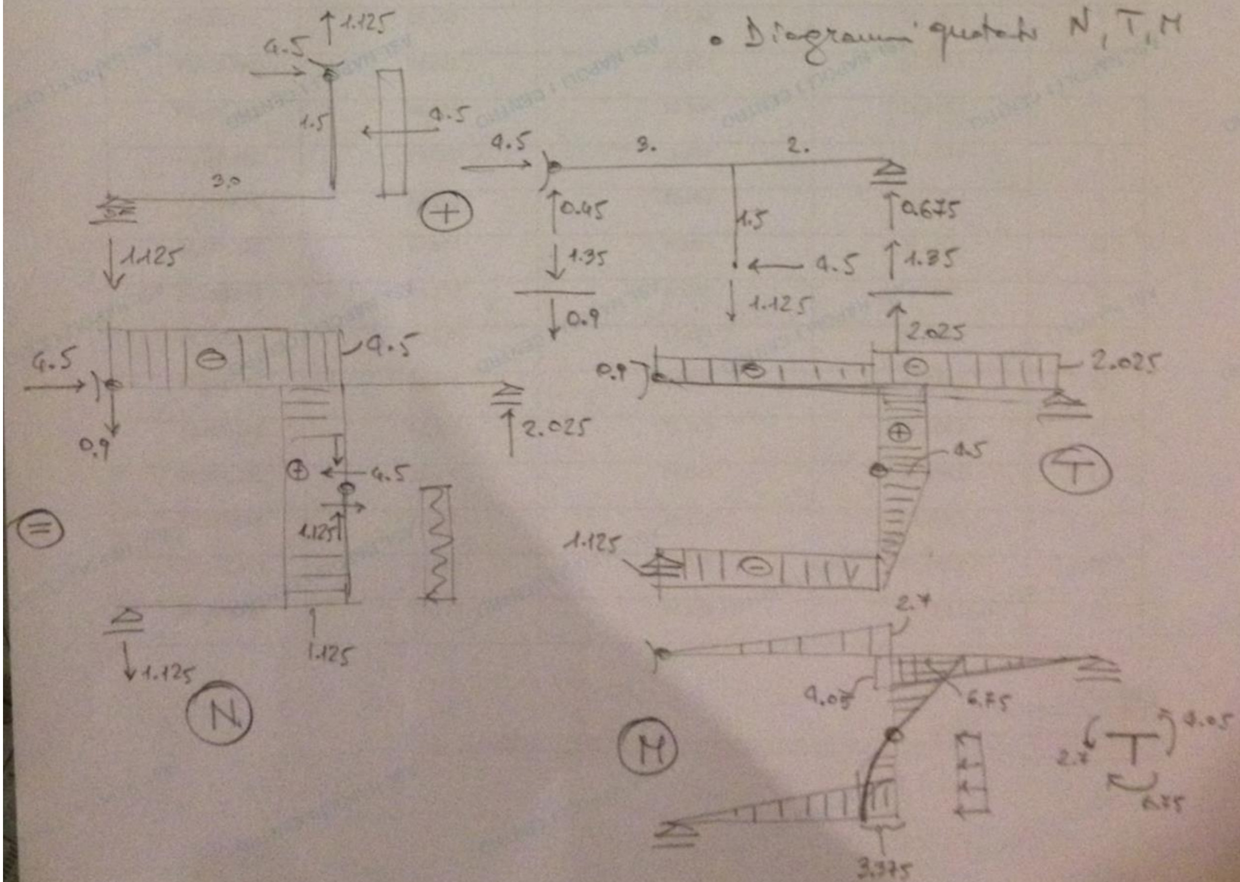


$M(z) = -4 \frac{z^2}{2}$

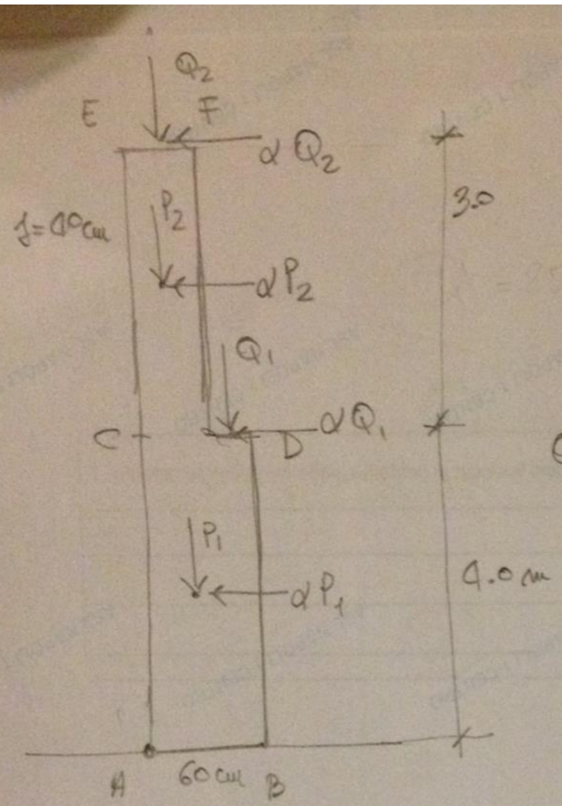
2



- R.V. ext e int
- Diagrammi quotati N, T, M



3



$\gamma = 25 \frac{kN}{m^3}$

$Q_1 = 12\ kN$

$Q_2 = 8\ kN$

- Calcolo dei pesi propri P_1 (di ABCD) e P_2 (di CDEF)

  Q_1, αQ_1 applicati a 10 cm da D

  Q_2, αQ_2 a metà di EF
- Valore di α che garantisce l'equilibrio alla rotazione di ABEF intorno ad A

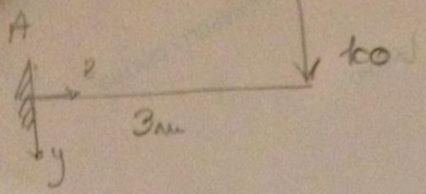
$P_1 = 0.6 \times 4.0 \times 25 = 60\ kN \qquad P_2 = 0.4 \times 3.0 \times 25 = \quad kN$

$M_A^S = 60 \times 0.3 + 30 \times 0.2 + 12 \times (0.6 - 0.1) + 8 \times 0.2 = 31.6$

$M_A^I = \alpha \left(60 \times 2 + 30 \times 5.5 + 12 \times 4 + 8 \times 7\right) = \alpha\, 389$

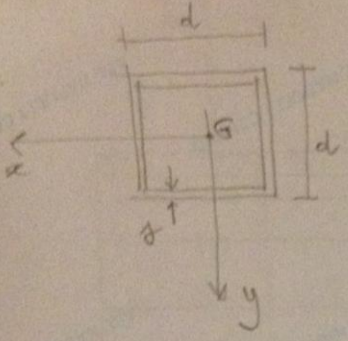
$\alpha = \frac{31.6}{389} = 0.0812$

vd. file excel



④

- I_x, I_y
- n-n e diagramma σ_z con applicato $M = M_A$
- σ_z^{max}
- Un punto del nocciolo
- n-n e diagramma σ_z per N = - applicato nel vertice basso sinistro

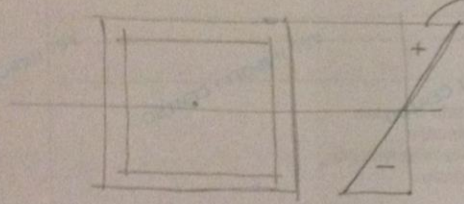


$M = M_A$

$d = 50$ cm

$s = 0,3$ cm

$\sigma_z^{max} = 305$



$A = 59.64 \text{ cm}^2$

$I_x = 24556 \text{ cm}^4$ (vd file excel)

$\frac{d}{2} + d_{G-n_1} = \rho^2_{n_0}$ $\quad d_{G-n_1} = 16.5 \text{ cm} = d_{G-n_2}$