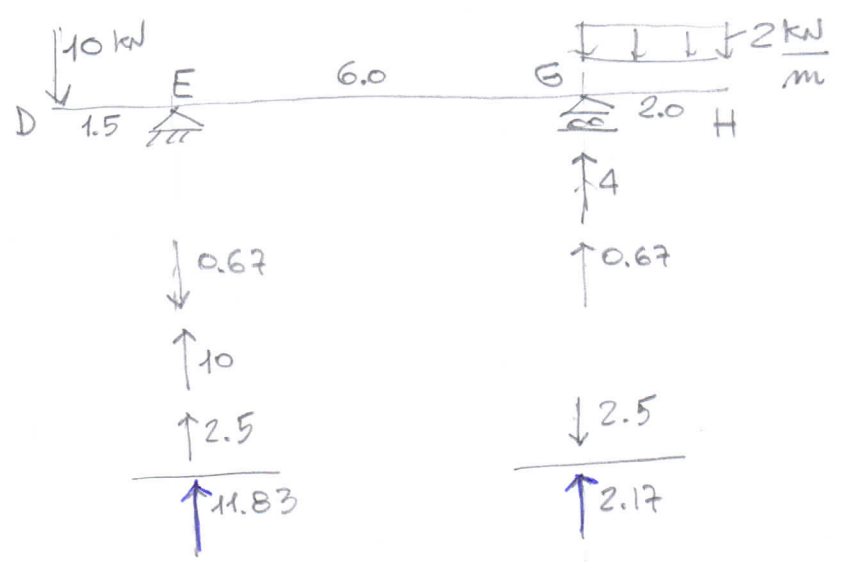
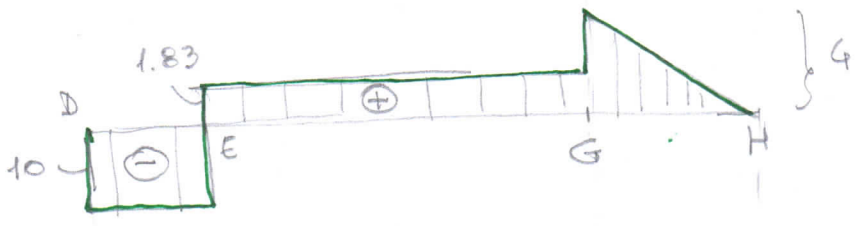


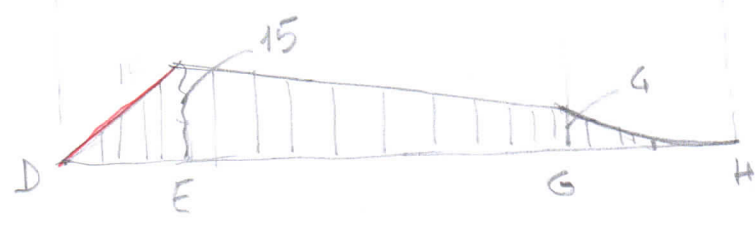
ES.1

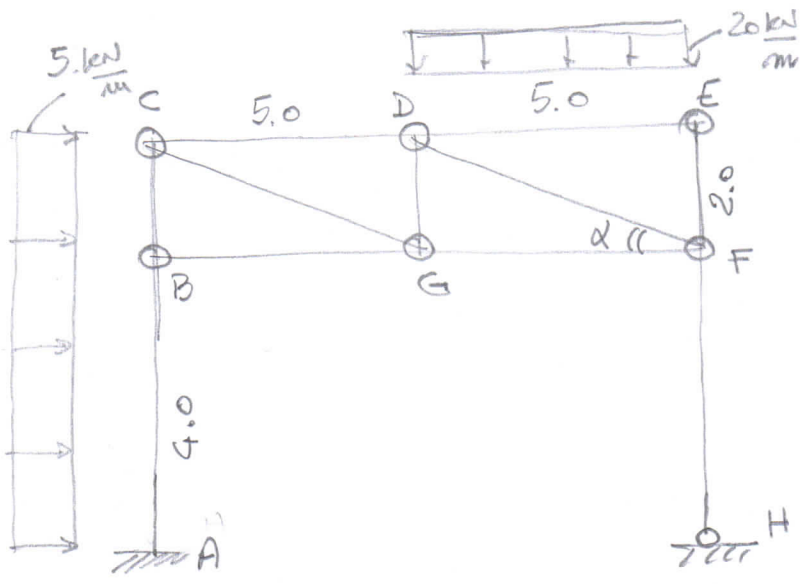


(T)



(M)





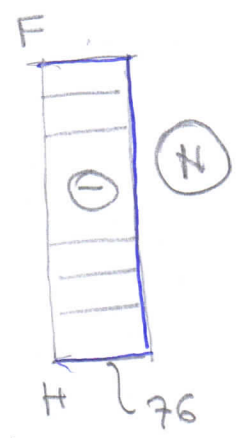
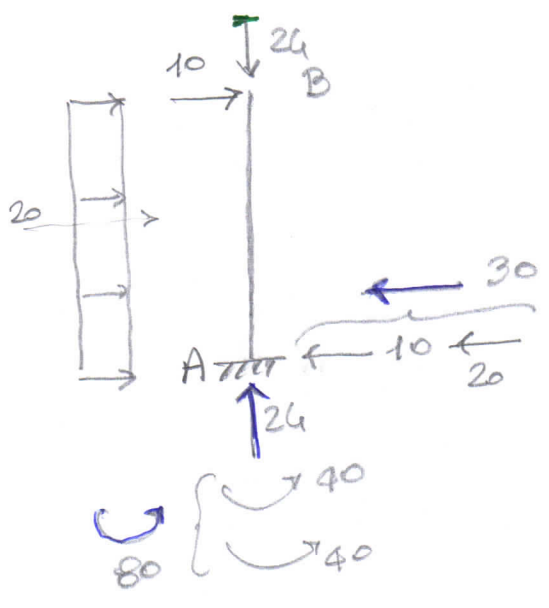
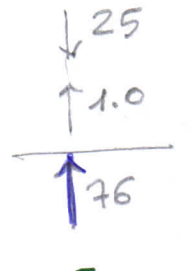
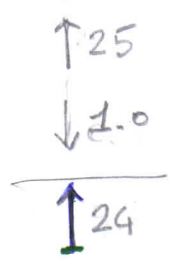
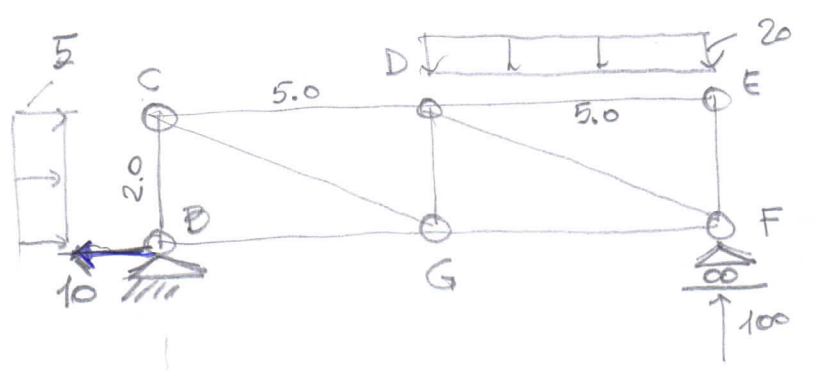
$$\tan \alpha = \frac{2}{5} = 0.4$$

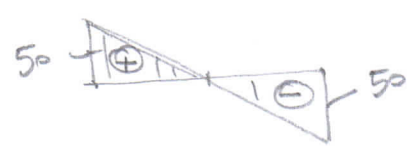
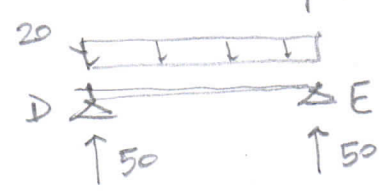
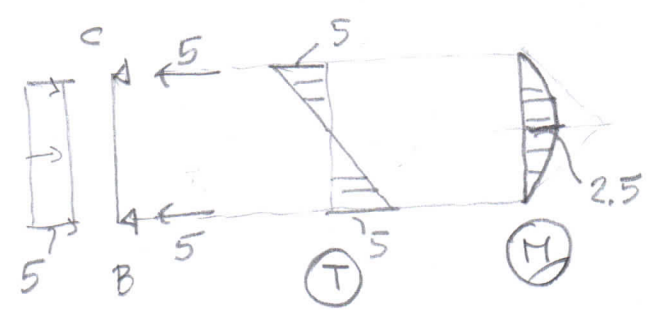
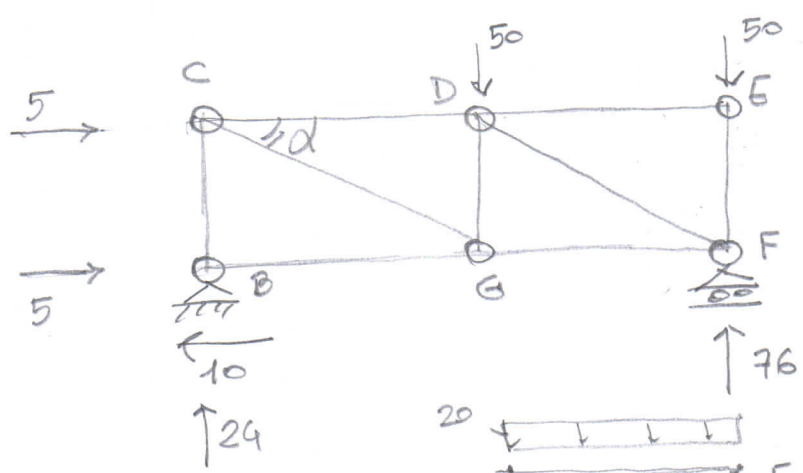
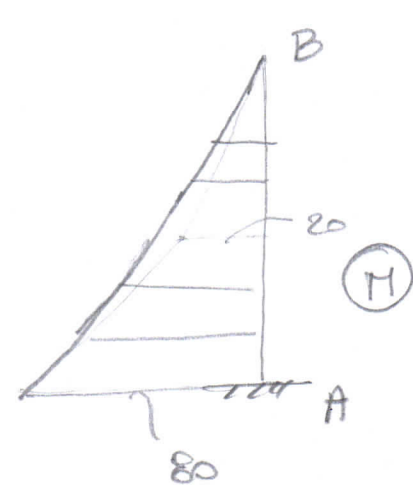
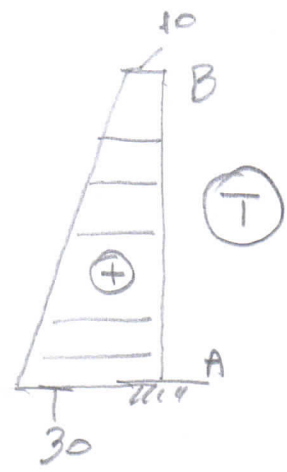
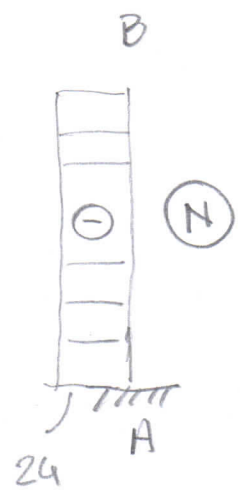
$$\alpha = 0.381 \text{ rad} = 21.8^\circ$$

$$\sin \alpha = 0.371$$

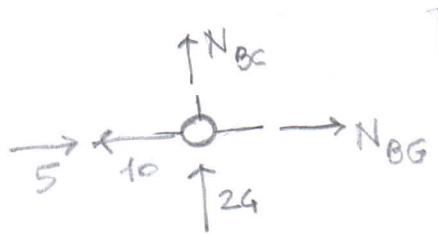
$$\cos \alpha = 0.928$$

ES.2





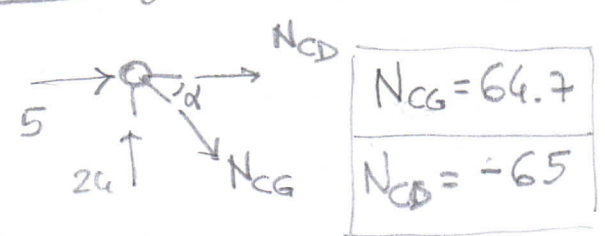
Node B



$N_{bc} = -24$
$N_{bg} = 5$

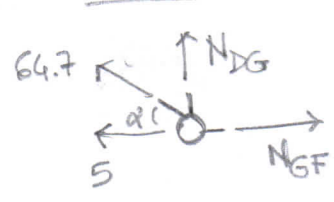
Node C

$$\begin{cases} 5 + N_{CG} \cdot 0.928 + N_{CD} = 0 \\ 24 - N_{CG} \cdot 0.371 = 0 \end{cases}$$



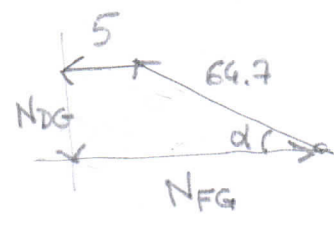
$N_{CG} = 64.7$
$N_{CD} = -65$

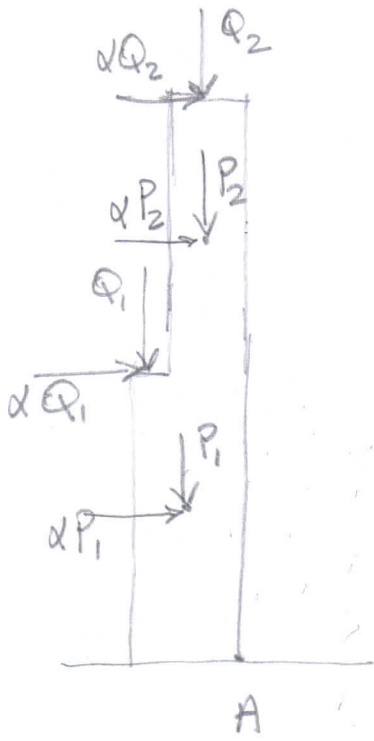
Node G



$$\begin{cases} -5 - 64.7 \cdot 0.928 + N_{FG} = 0 \\ N_{DG} + 64.7 \cdot 0.371 = 0 \end{cases}$$

$N_{DG} = -24$	$N_{FG} = 65.0$
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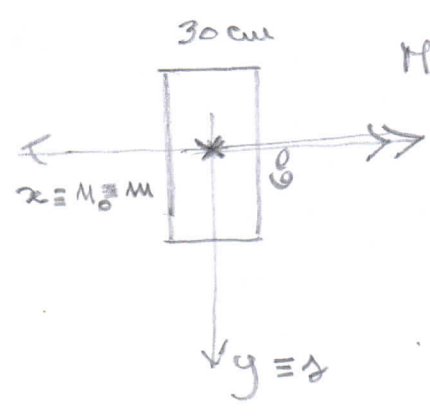
$$\gamma_{muro} = 18 \frac{\text{kN}}{\text{m}^3}$$

$l_{se} = 5 \text{ m}$ piano 1 $q_{se} = 6 \frac{\text{kN}}{\text{m}}$ piano 2 $q_{se} = 4 \frac{\text{kN}}{\text{m}}$

vd. ES.3 Tracce 2/7/2019

$P_1 = 28.8 \text{ kN}$ $P_2 = 13.5$ $Q_1 = 15$ $Q_2 = 10$

$$\alpha = \frac{M_{st}}{M_{ult}} = \frac{13.45}{261.85} = 0.051$$



$$M = -19.5 \text{ kNm}$$

$$N = -12 \text{ kN}$$

$$A = 30 \times 60 = 1800 \text{ cm}^2$$

$$I_x = \frac{30 \times 60^3}{12} = 540000 \text{ cm}^4$$

$$\sigma_z = \frac{-12000}{1800 \times 10^2} + \frac{-19.5 \times 10^6}{540 \times 10^7} y = -0.0667 - 0.00361 y$$

$$\sigma_z = 0 \Rightarrow m-m \Rightarrow y_m = -\frac{0.0667}{0.00361} = -18 \text{ mm}$$

