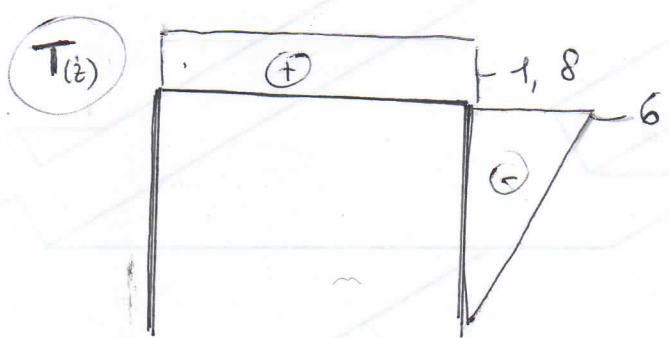
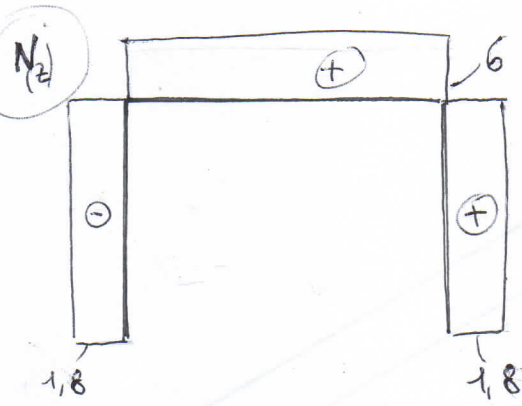
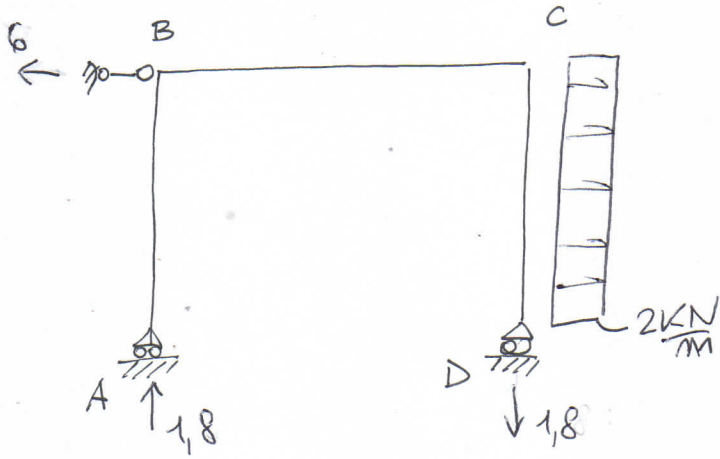
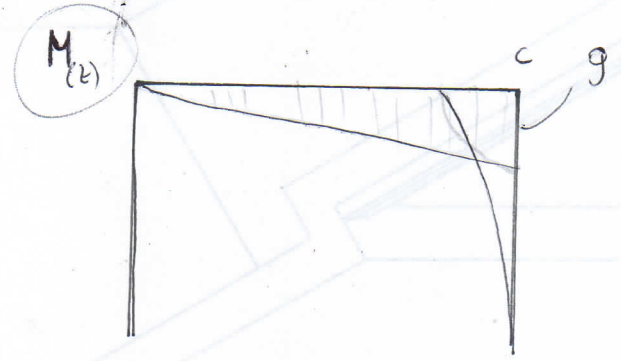


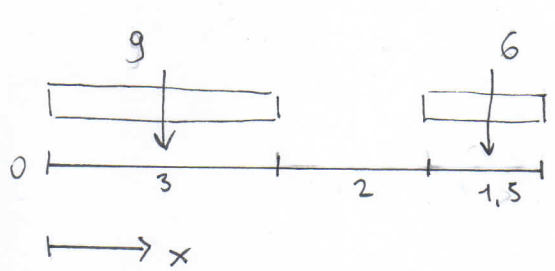
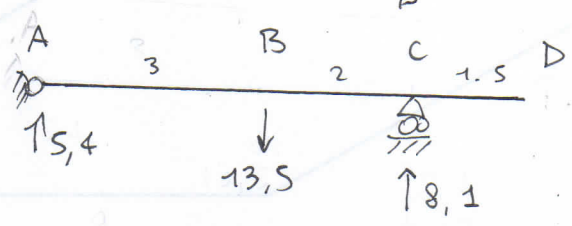
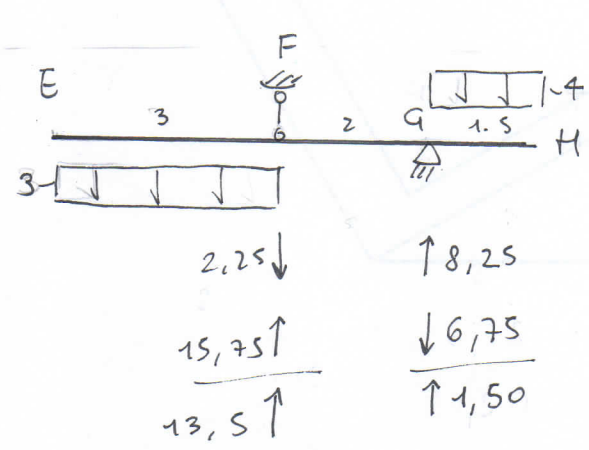
1



$0 \equiv D) \quad M(z) = 2 \frac{z^2}{2} = z^2$



2

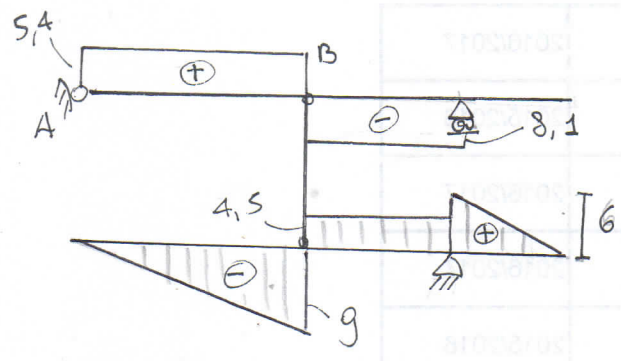


$$-9 \times 1,5 - 6 \times 5,75 = 15 \times x$$

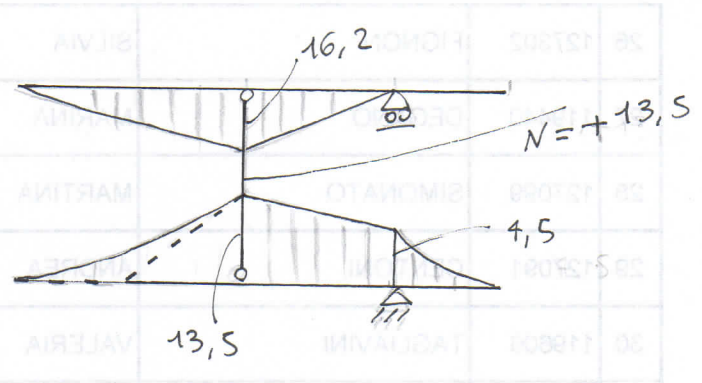
$$x = 3,2$$

2

$T(z)$

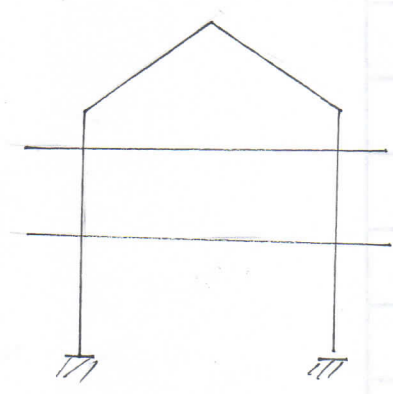


$M(z)$

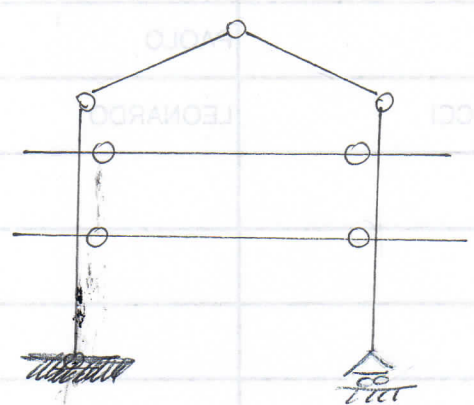


$$\Delta l_{BF} = \frac{13,5 \times 10^3 \times 2000}{210000 \cdot \pi \cdot 5^2 / 4} = 6,5 \text{ mm}$$

3



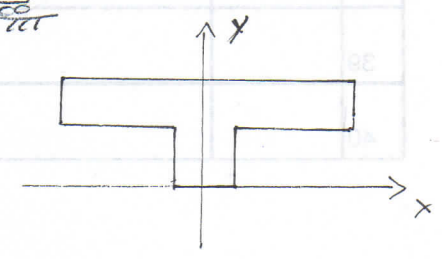
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isost

$$A = 30 \times 250 + 30 \times 40 = 7500 + 1200 = 8700$$

$$Y_G = \frac{Sx}{A} = \frac{30 \times 250 \times 55 + 30 \times 40 \times 20}{8700} = 50,2 \text{ cm}$$



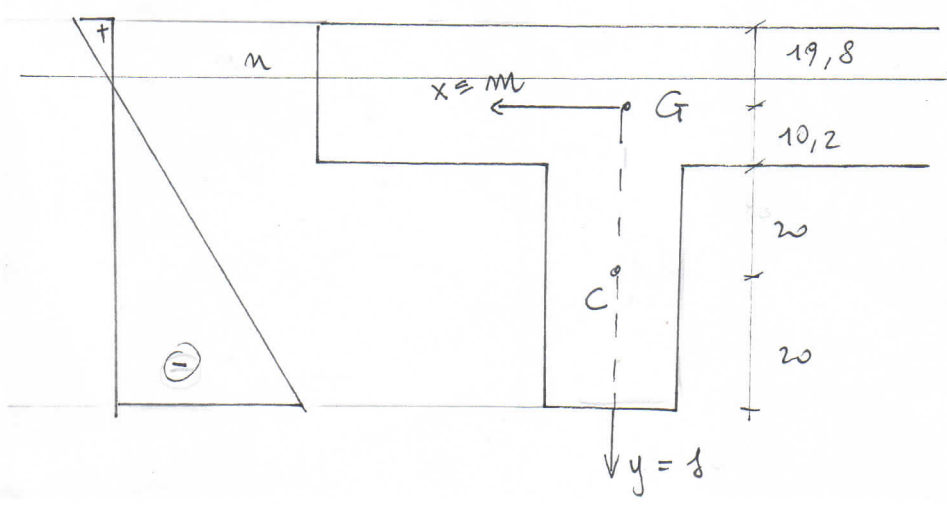
$$I_x = 250 \times \frac{30^3}{12} + 30 \times 250 \times (55 - 50,2)^2 + 30 \times \frac{40^3}{12} + 30 \times 40 \times (20 - 50,2)^2$$

$$I_x = 1990000 \text{ cm}^4 \quad N_G = -150 \text{ KN}$$

$$M_x = -150 \times (50,2 - 20) = -4500 \text{ KNcm}$$

$$\delta_z = - \frac{150 \times 10^3}{8700 \times 10^2} - \frac{1500 \times 10^4}{1990000 \times 10^4} y \Rightarrow m \cdot m) y = - \frac{1990000}{4500} \frac{1500}{8700} = -76 \text{ mm}$$

$$30 \times d_{G-m} = \frac{1990000}{8700} \Rightarrow d_{G-m} = 7,6 \text{ cm}$$



$$\sigma_z^{MAX} = -0,172 + 0,452 = 0,280 \text{ N/mm}^2$$

$$\sigma_z^{MIN} = -0,172 - 1,131 = -1,303$$