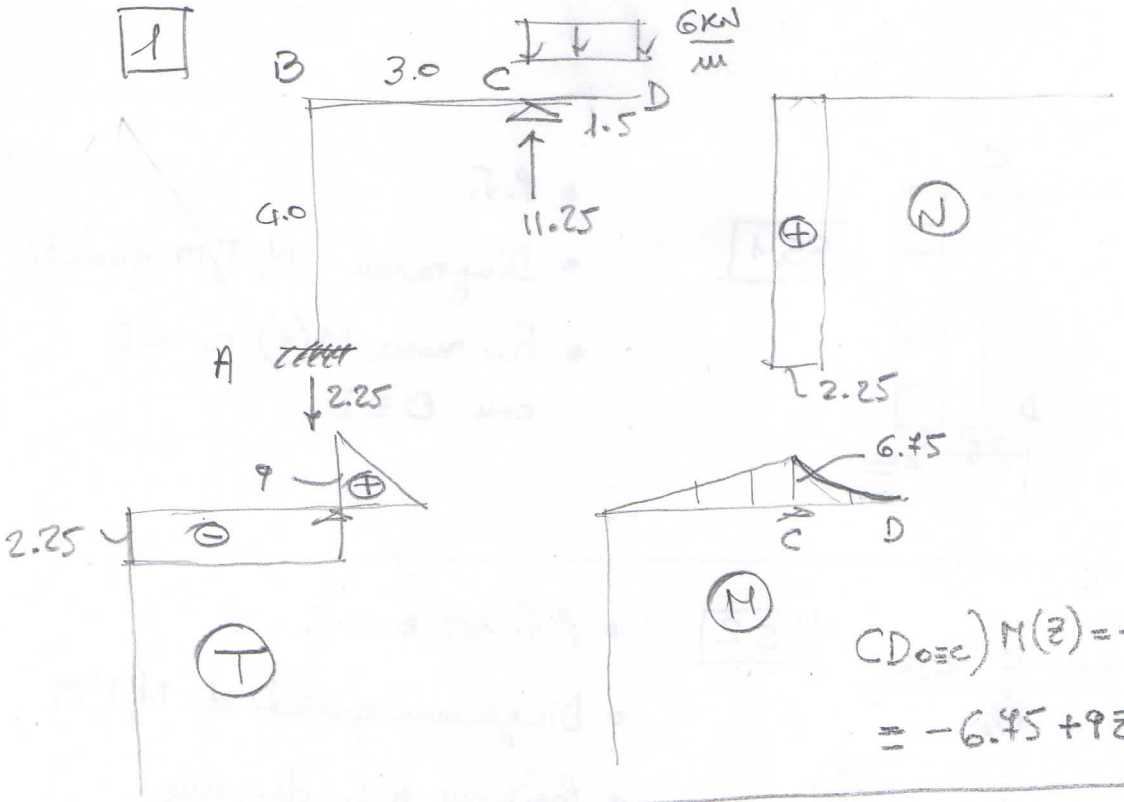
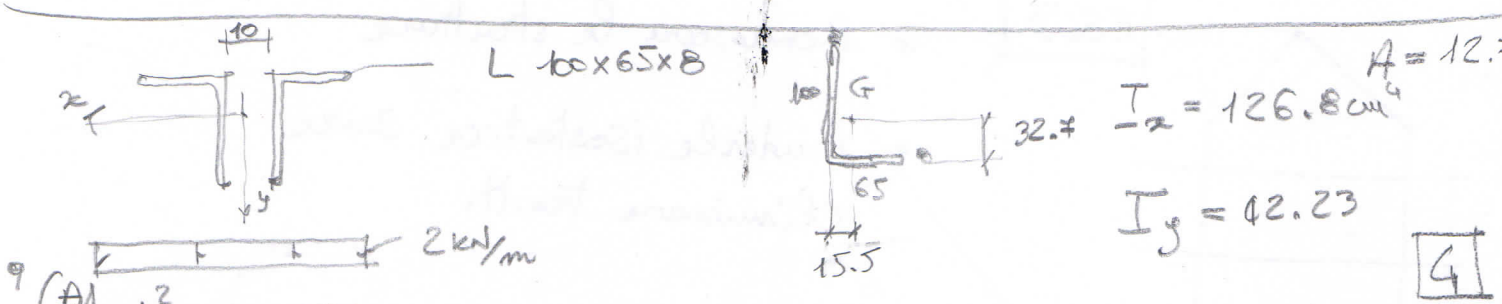
1



$$CD \Rightarrow c) \quad M(z) = -6\frac{(1.5-z)}{2}^2 =$$

$$= -6.75 + 9z - 3z^2$$

2:p **3**



$A = 12.7$

$I_x = 126.8\ cm^4$

$I_y = 42.23$

4

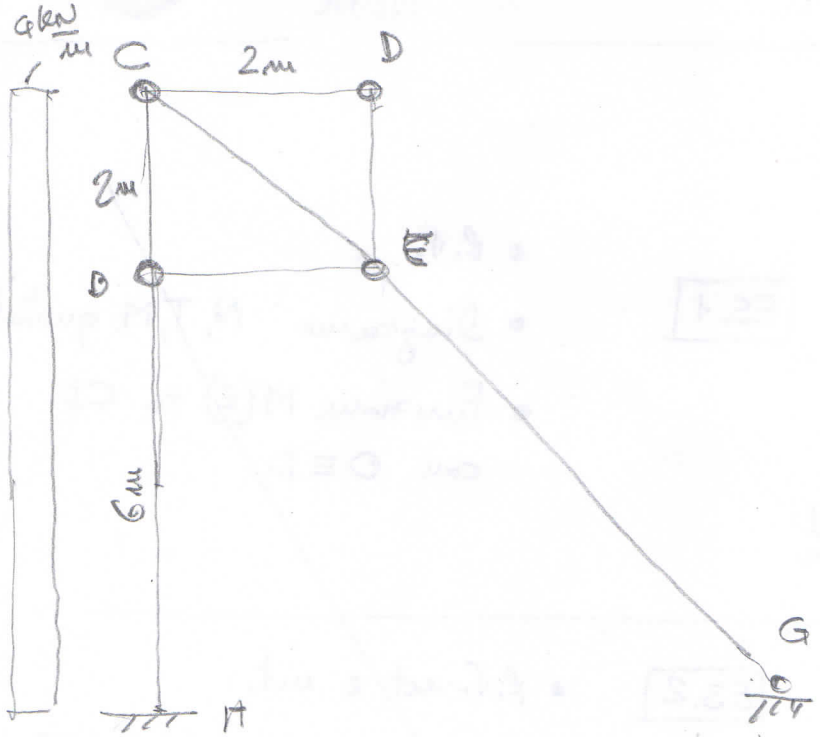
$I_z = 253.6$

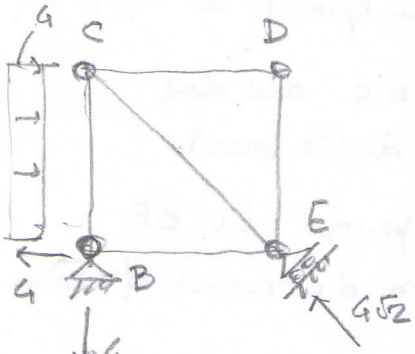
$$I_y = 2 \cdot \left[42.23 + 12.7 \times \left(1.55 + 0.5\right)^2\right] = 191.2\ cm^4$$

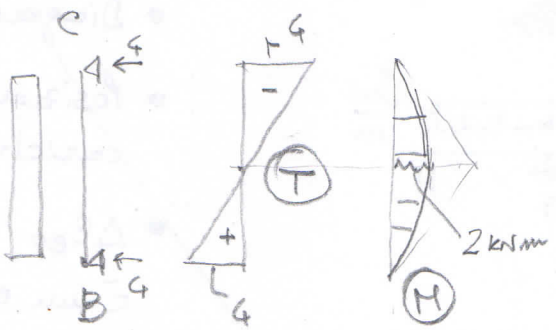
$$\sigma_z^{max} = \frac{-9 \times 10^6}{253.6 \times 10^4}(-32.7) = 116\ \frac{N}{mm^2} \qquad \sigma_z^{min} = \frac{-9 \cdot 10^6}{253.6 \times 10^4} \times (100 - 32.7) = -239\ \frac{N}{mm^2}$$

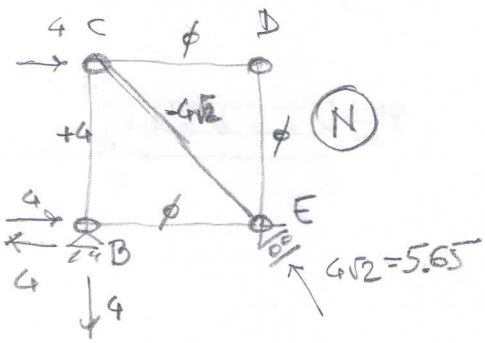
$$f_x = 9.98\ cm^2 \qquad d_{GC_1} = \frac{9.98}{3.27} = 3.05\ cm \qquad d_{GC_2} = \frac{9.98}{(10 - 3.27)} = 1.5\ cm$$

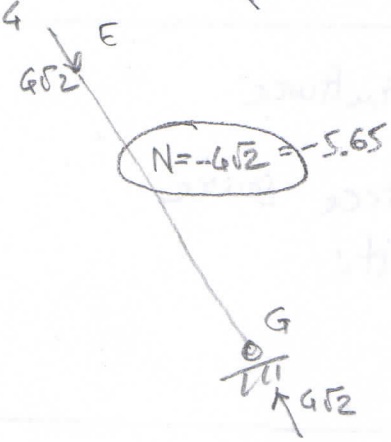
2a

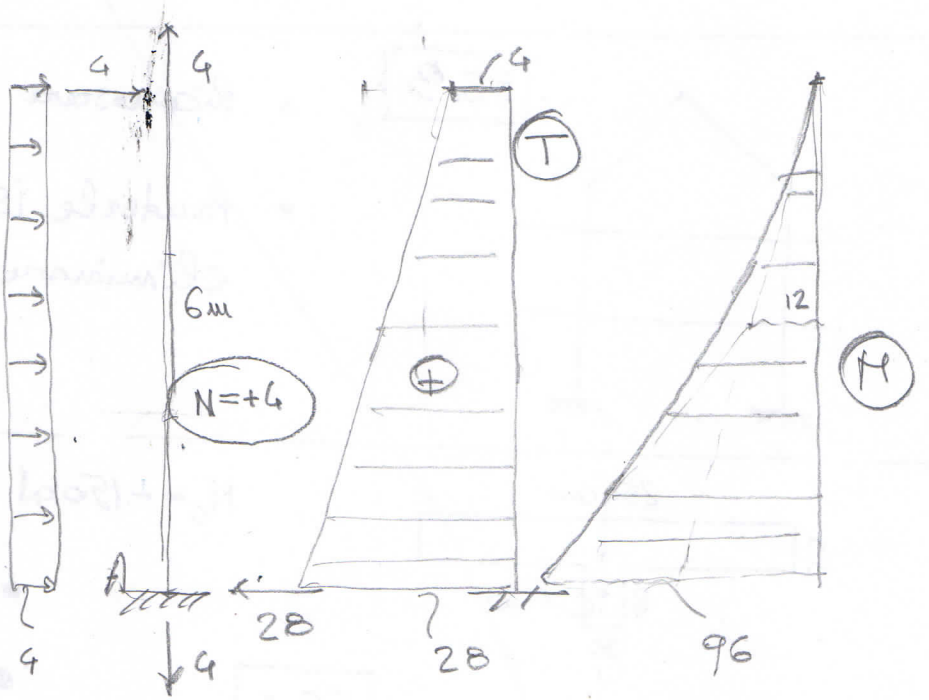

6kN/m
C
2m
D
2m
D
E
6m
G
A


G
C
D
E
G
B
G
G√2


C
G
B
G
G
T
+
-
2 kNm
M

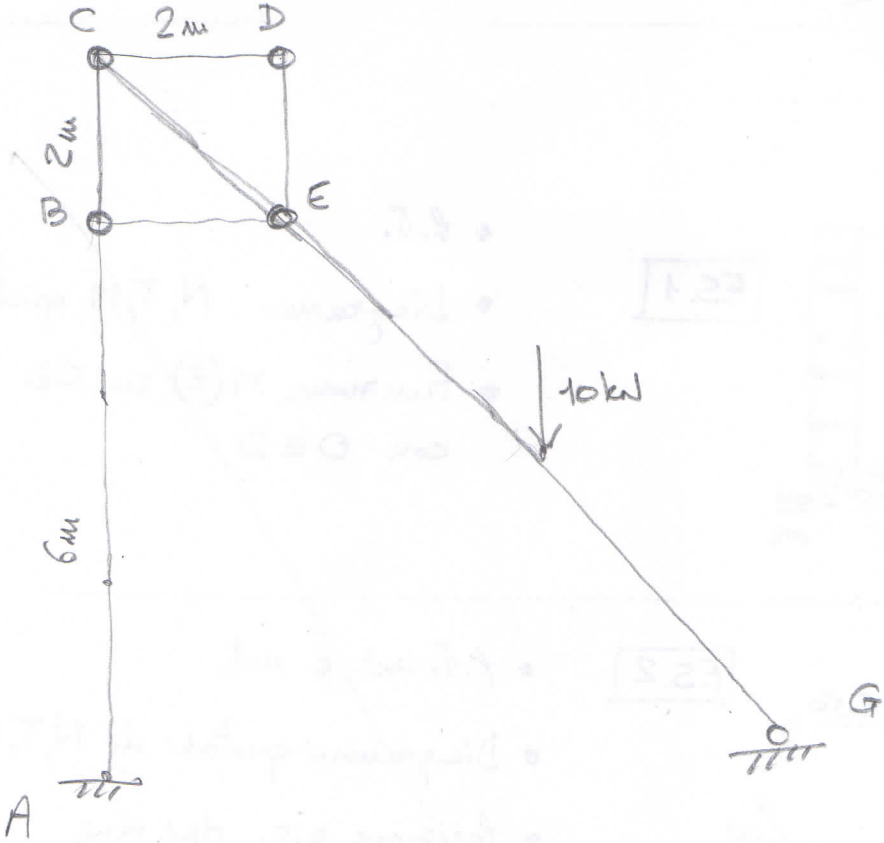

G
C
D
-G√2
+G
N
G
E
B
G
G
G√2=5.65

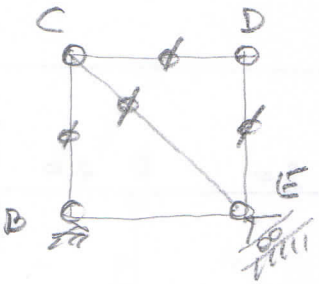

E
G√2
N=-G√2=-5.65
G
G√2

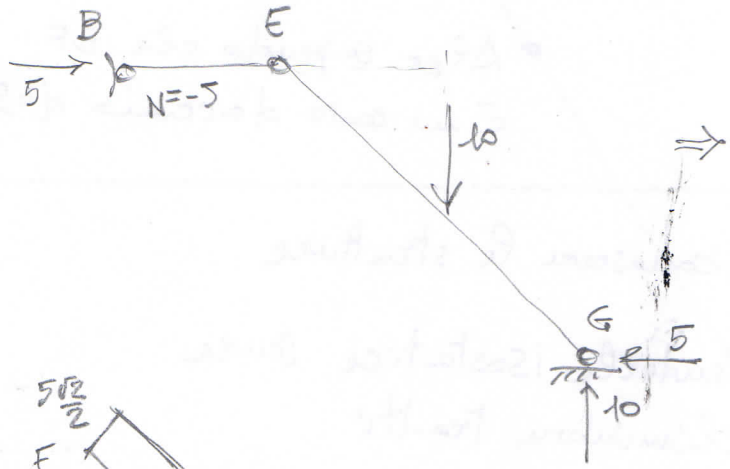

G
G
6m
N=+G
G
G
T
+
28
28
12
96
M

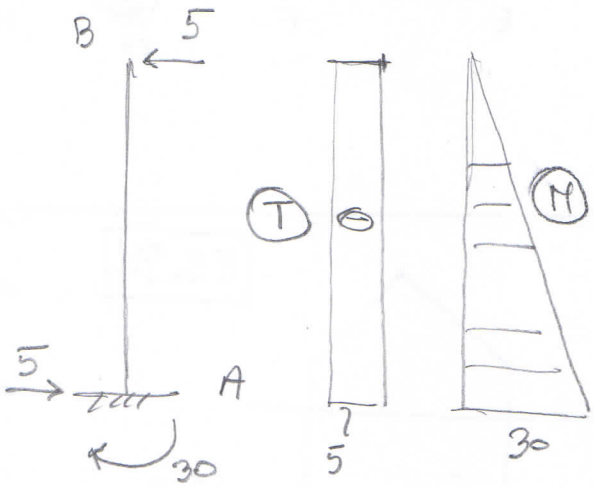
2G+72=96

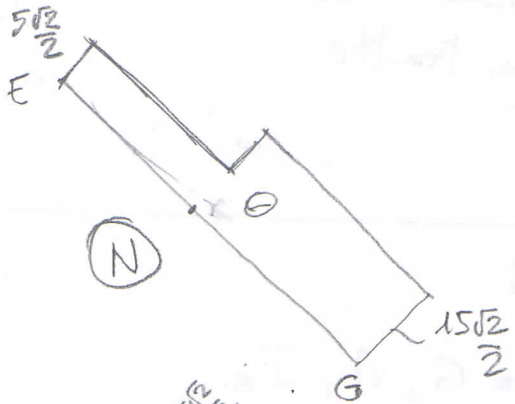
2b

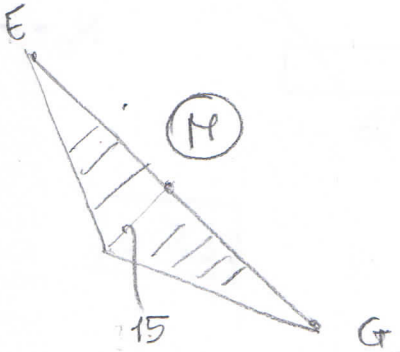

C
2m
D
2m
B
E
10kN
6m
G
A

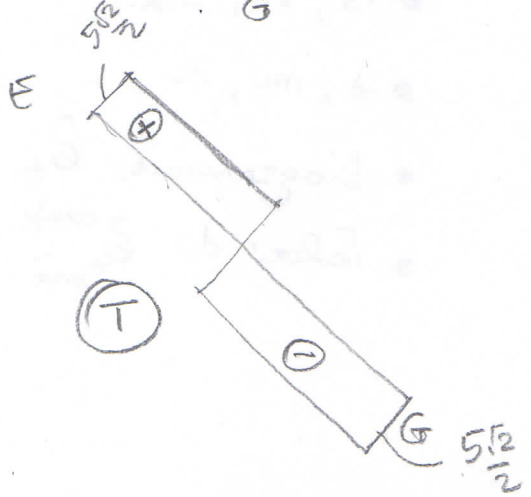

C
D
E
B


B
E
5
N=-5
10
G
5
10


B
5
5
A
30
T
M
5
30


5√2/2
E
N
15√2/2
G


E
M
15
G


5√2/N
E
T
G
5√2/2