

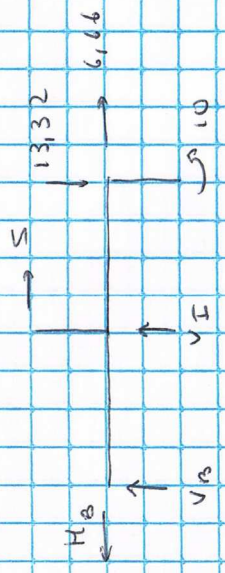
$$2F_D = \frac{F_D}{\sqrt{5}} \quad F_D = 10 \times 2\sqrt{2} = 20\sqrt{2} \quad 10 \times 2,15 = 21,5 = 53,28$$

$$F_D = 14,89 \Rightarrow H_D = 6,66 \quad \checkmark$$

$$V_D = 13,32 \quad \checkmark$$

$$V_B = 10 \times 2\sqrt{2} + 10 = 13,32 = 24,96$$

$$H_B = V_D = 6,66$$



$$V_I = 5 + 13,32 = 18,32 \quad 18,32 - 10 = 8,32 \quad V_I = 24,14 \quad \checkmark$$

$$V_B = 13,32 - 24,14 = -10,82$$

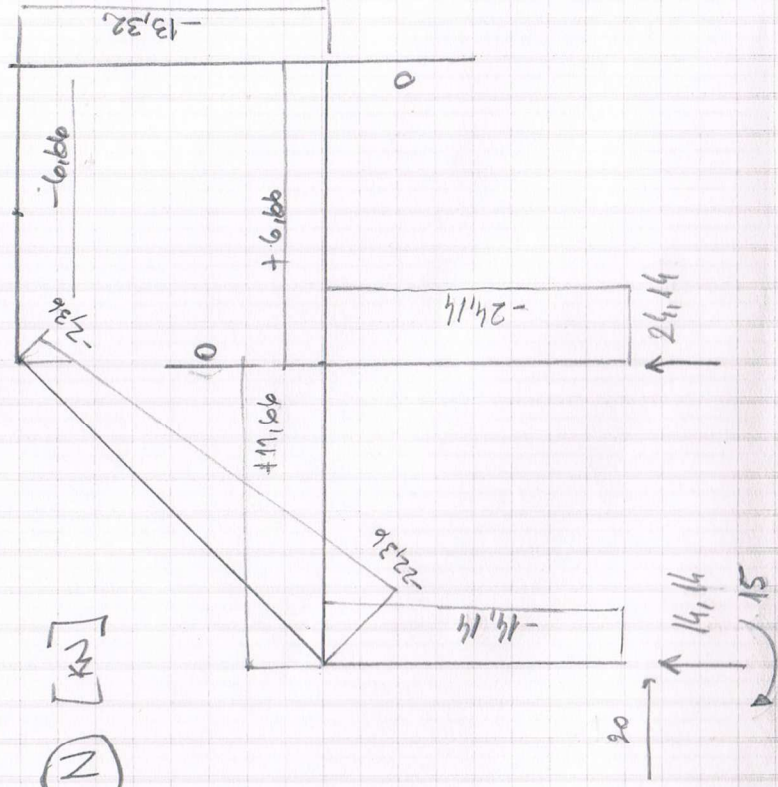
$$H_B = 5 + 6,66 = 11,66$$

$$H_A = 25 + 11,66 - 11,66 = 20$$

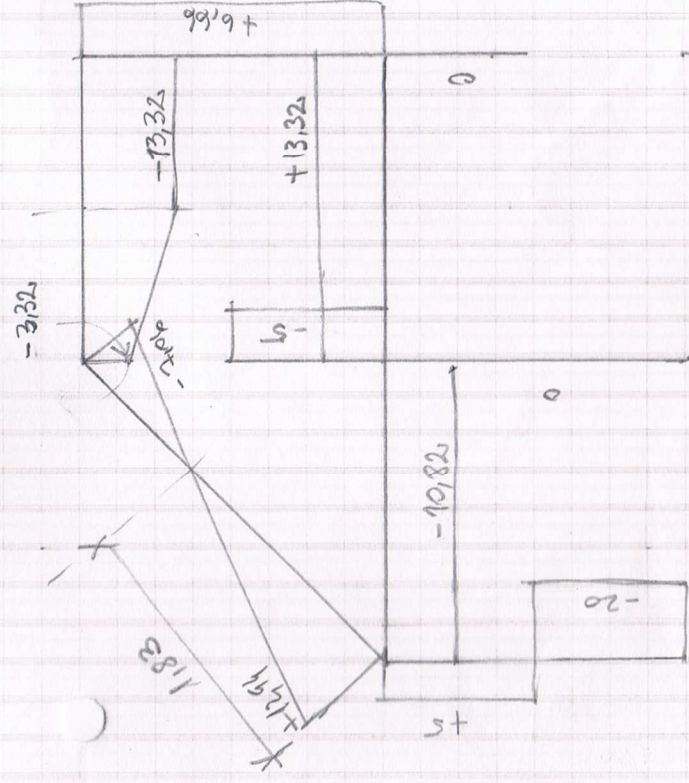
$$V_A = 24,96 - 10,82 = 14,14 \quad \checkmark$$

$$M_A = 25 + 6,66 \times 2 - 11,66 \times 2 = 15$$

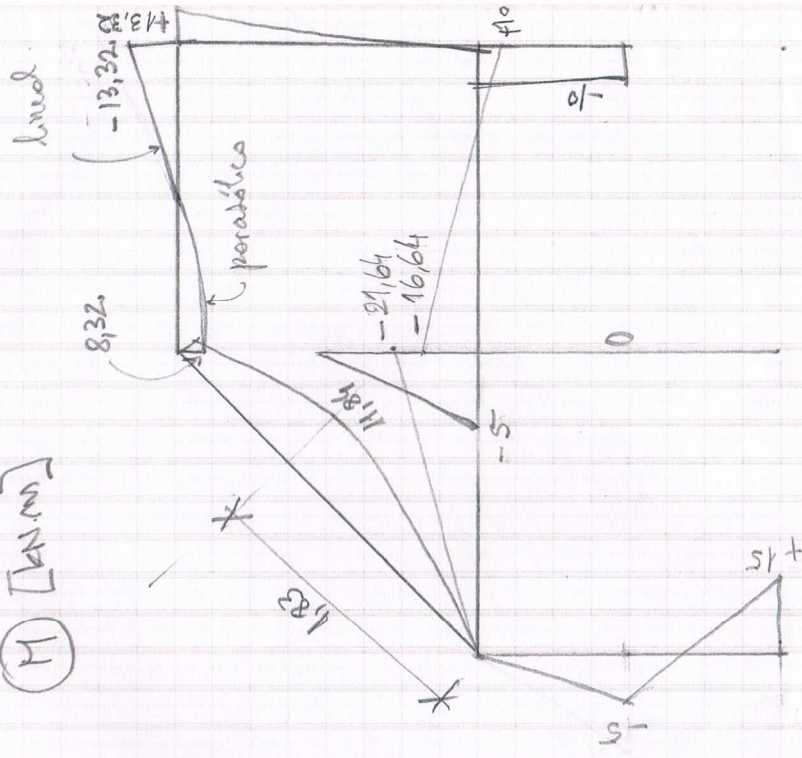
(2) [kN]

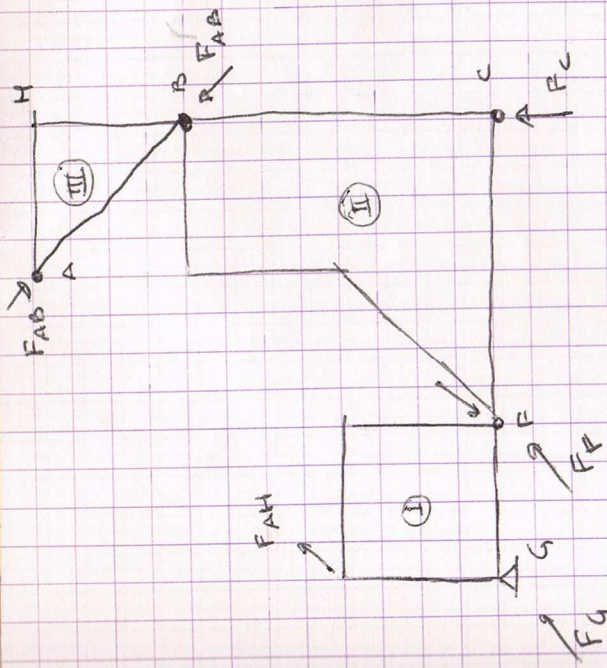


(Y) [kN]



(M) [kNm]





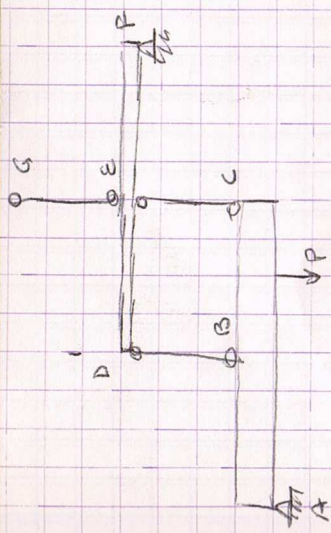
Disco III al pto A dicen 2 bielas es como una "articulaci3n" es a A y B es fuerza deben tener se direcci3n AB  $\rightarrow$   $F_{AB}$

Disco II =  $F_{AB}$  y  $F_C$  se corta a B  $\Rightarrow$   $F_F$  debe cortarse a B  $\Rightarrow$   $F_F$

Disco I =  $F_F$  y  $F_{AH}$  son paralelos  $\Rightarrow$   $F_G$  debe ser tambien  $\parallel \Rightarrow F_G$

Equilibrio global =  $F_G$  y  $F_C$  se corta en el pto H  $\Rightarrow$  es biela II es concurrente  $\Rightarrow$  es no concurrente y es biela I no concurrente  $\Rightarrow$  debe valer cero

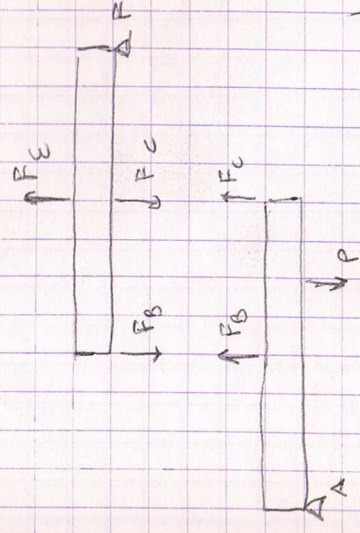
si  $F_I = 0 \Rightarrow F_G = F_C = 0$  por eq global  
 $\Rightarrow$  por Disco I, si  $F_G = 0 \Rightarrow F_{AH}$  y  $F_F = 0$   
 $\Rightarrow$  por Disco II si  $F_F = 0 \Rightarrow F_{AB} = F_C = 0$  es todo ser cero  
~~es por Disco~~  $\Rightarrow$  biela I = sust. invariada  
 biela II = sust. no invariada



$$\sum M_A = 1/5 P a = F_{BD} + 2a F_C$$

$$\sum M_F = F_{EA} = F_{CA} + 2 F_{BA}$$

$$\delta_C = 2 \delta_B$$



$$\Delta Q_{EG} = \frac{F_E L}{EA} \Rightarrow \downarrow \delta_E = \frac{F_E L}{EA}$$

$$\downarrow \delta_C = 1 \delta_E + \Delta Q_{EC} = \frac{F_E L}{EA} + \frac{F_C L}{EA}$$

$$\downarrow \delta_B = \downarrow \delta_C + \Delta Q_{BD} = \frac{2 F_E L}{EA} + \frac{F_C L}{EA}$$

$$\downarrow \delta_B = 2 \delta_E = 2 \frac{F_E L}{EA}$$

$$1,5P = F_B + 2F_C$$

$$F_E = F_C + 2F_B$$

$$F_E + F_C = 2(2F_E + F_B) = 4F_E + 2F_B \Rightarrow F_C = 3F_E + 2F_B$$

$$1,5P = F_B + 2F_C$$

$$F_C = 3(F_C + 2F_B) + 2F_B = 3F_C + 6F_B + 2F_B = 3F_C + 8F_B \Rightarrow 2F_C + 8F_B = 0$$

$$\Rightarrow 1,5P = F_B - 8F_B = -7F_B \Rightarrow F_B = -\frac{3}{14} P$$

$$F_C = \frac{1,5P - F_B}{2} = \frac{3/2 P + 3/14 P}{2} = \frac{6}{7} P$$

$$F_E = \frac{6}{7} P - 2 \cdot \frac{3}{14} P = \frac{3}{7} P$$