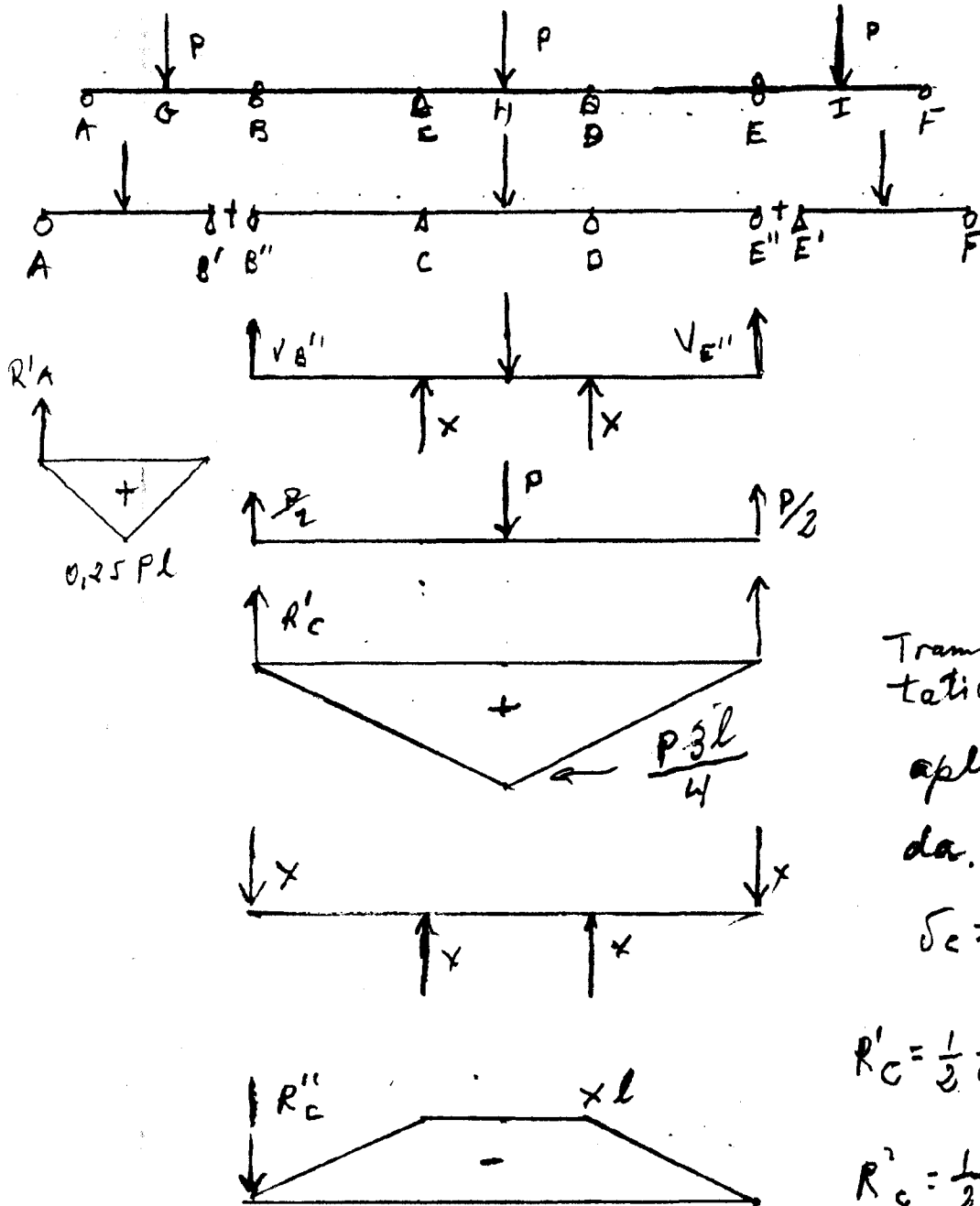




$$M_B = 0 = V_A l - P \frac{l}{2}$$

$$V_A = \frac{P}{2}$$

$$V_B = \frac{P}{2}$$

$$V_F = V_A$$

$$V_{E'} = V_{B'}$$

Tramo isostático

Tramo central hiperestático, hay simetría. aplico viga conjugada.

$$\delta_C = 0$$

$$\delta_C = \frac{M_C}{EI_2} = 0$$

$$R'_C = \frac{1}{2} \cdot \frac{3}{4} P l \cdot \frac{3}{2} l = \frac{9}{16} P l$$

$$R''_C = \frac{1}{2} \times l^2 + x l \frac{1}{2} = x l$$

$$0 = \frac{9}{16} P l^2 l - \frac{1}{2} \frac{P l}{2} l + \frac{1}{3} l - x l^2 l + \frac{1}{2} x l l \frac{1}{3} l$$

$$0 = \frac{23}{48} P - \frac{5}{6} x \rightarrow \boxed{x = 0,575 P}; V_A = 2 P (1 - 0,575) \frac{1}{2}$$

$$\textcircled{1^\circ} \boxed{V_A = V_F = 0,5 P; V_B = V_E = 0,425 P; V_C = V_D = 0,575 P; H_C =}$$

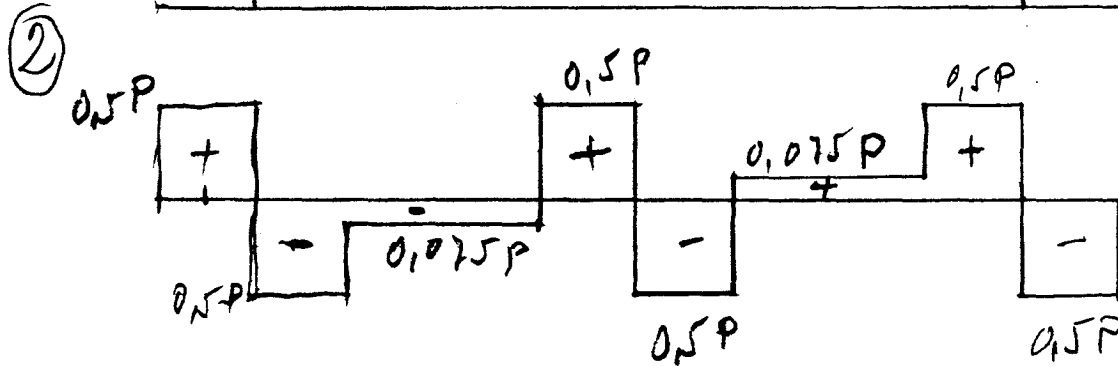
$$M_A = 0; M_G = \frac{P}{2} \frac{l}{2}; M_B = 0; M_C = (0,5 - 0,575) P l; M_H = (0,25 - 0,075) P l$$

$$\textcircled{4^\circ} \text{ Aplico viga conjugada AB } R'_A = \frac{1}{2} 0,25 P l \cdot \frac{l}{2} = \frac{P l^2}{16}$$

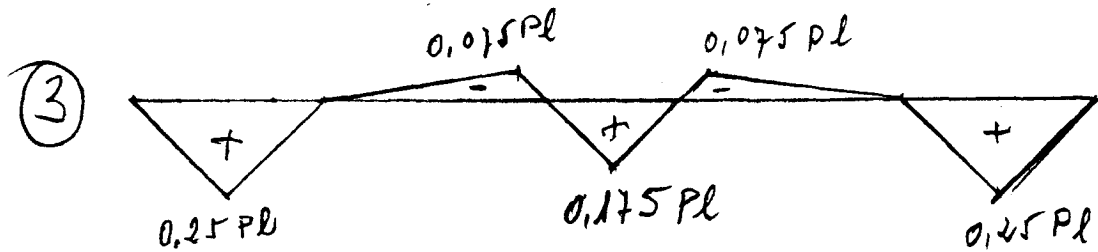
$$M'_G = \frac{P l^2}{16} \left(\frac{2}{3} \frac{l}{2} \right) \rightarrow \boxed{\delta_G = \frac{P l^3}{48 E I_2}}$$



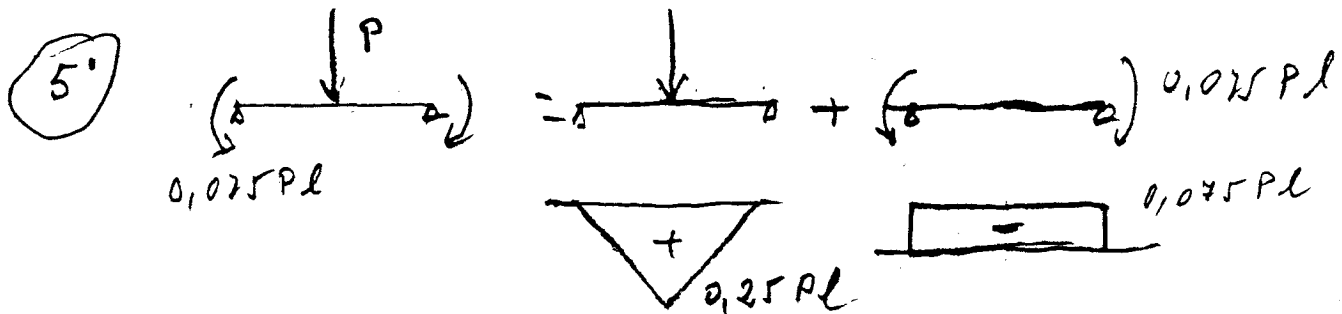
E. N.



E. C.



M. F.



Aplico viga conjugada, El primer caso es el mismo del apartado 4'. $M_H'' = 0,075 Pl \frac{L}{2} \frac{L}{4} = \frac{0,45 Pl^3}{48}$

$$\delta_H = \frac{Pl^3 \cdot 0,55}{48 EI}$$