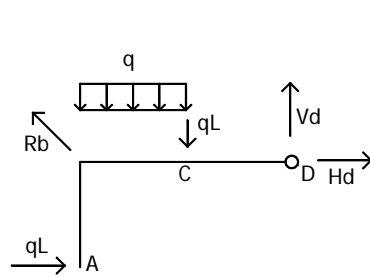
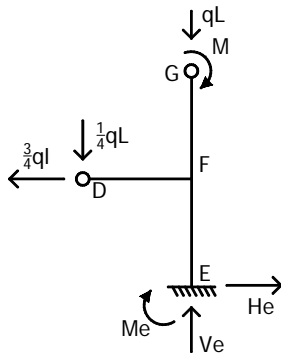
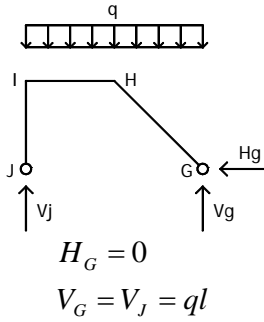


SOLUCIÓN SEGUNDO PARCIAL 28/11/05

Ejercicio 1

a)



$$M_B = ql^2 - \frac{ql^2}{2} - ql^2 + 2V_D.l = 0 \Rightarrow V_D = \frac{ql^2}{4}$$

$$\sum V = \frac{R_B}{\sqrt{2}} - ql^2 - ql^2 + \frac{ql^2}{4} = 0 \Rightarrow R_B = \frac{7\sqrt{2}}{4} ql$$

$$\sum H = H_D - \frac{R_B}{\sqrt{2}} + ql^2 = 0 \Rightarrow H_D = \frac{3}{4} ql$$

$$\sum V = V_E - ql - \frac{ql}{4} \Rightarrow V_E = \frac{5}{4} ql$$

$$H_E = \frac{3}{4} ql$$

$$M_E = \frac{3}{4} ql^2 + \frac{ql^2}{4} - M = ql^2 - M \Rightarrow ql^2 - M \leq \pm 0.5ql^2 \Rightarrow \begin{cases} M = 0.5ql^2 \\ M = 1.5ql^2 \times \end{cases}$$

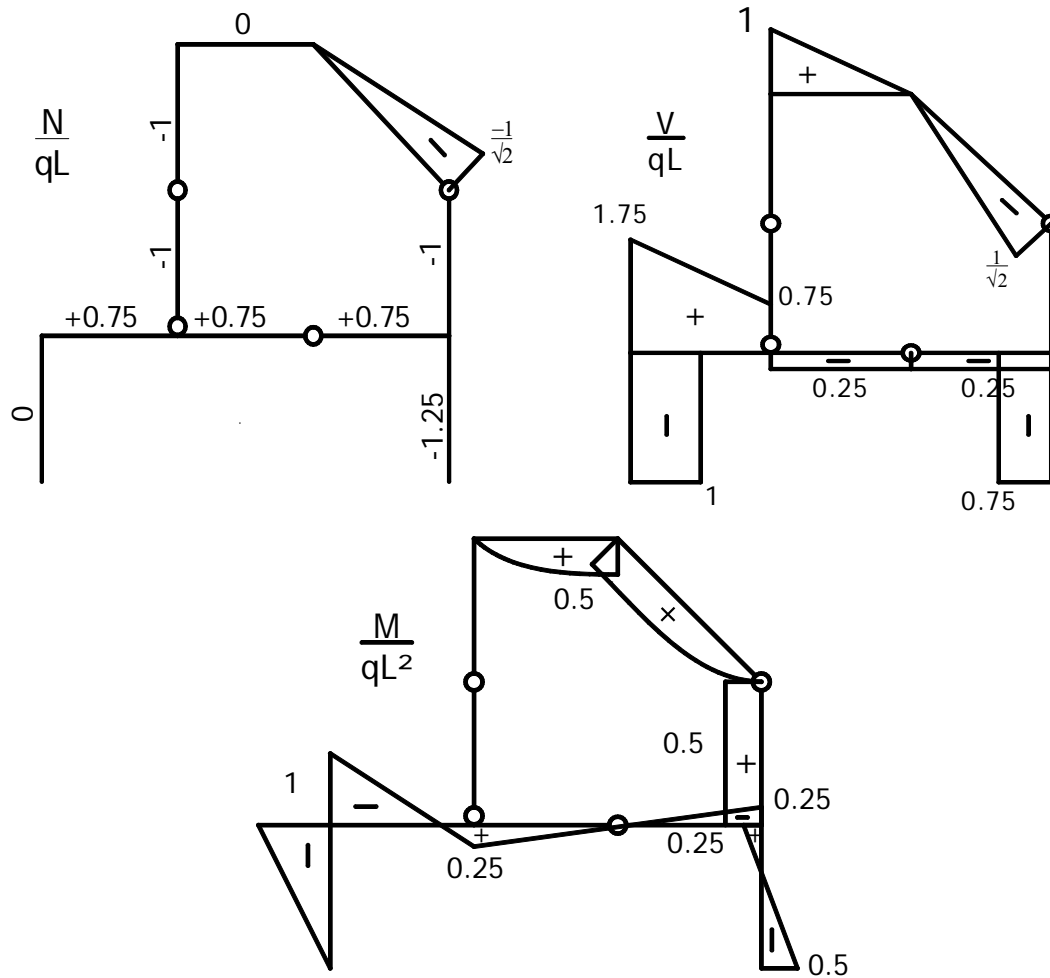
$$M_F^{\text{sup}} = M \Rightarrow M = 0.5ql^2$$

$$M_F^{\text{sup}} = M - \frac{ql^2}{4} \Rightarrow M - \frac{ql^2}{4} \leq \pm 0.5ql^2 \Rightarrow \begin{cases} M = 0.75ql^2 \times \\ M = -0.25ql^2 \times \end{cases}$$

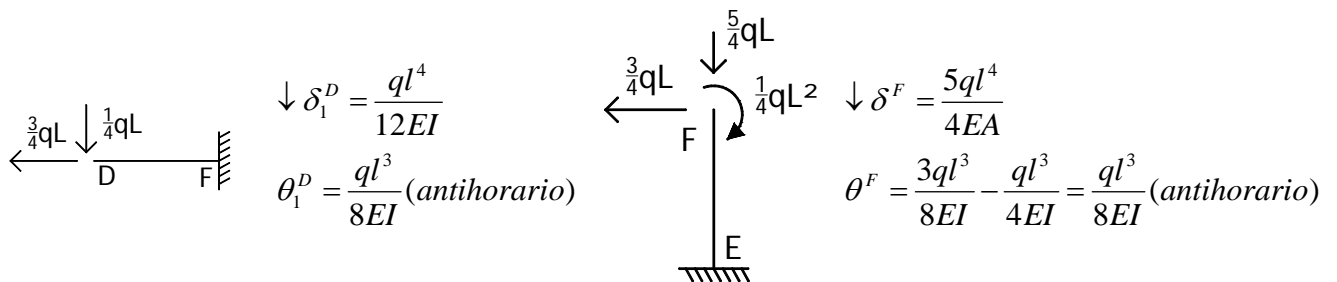
$M = 0.5ql^2$

Resistencia de Materiales 1N

b)



c)



$$\downarrow \delta^D = \delta_1^D + \delta^F + \theta^F \cdot l = \left(\frac{5}{24I} + \frac{5}{4A} \right) \cdot \frac{ql^4}{E}$$

$$\theta^D = \theta_1^D + \theta^F = \frac{ql^3}{EI} \text{ (antihorario)}$$