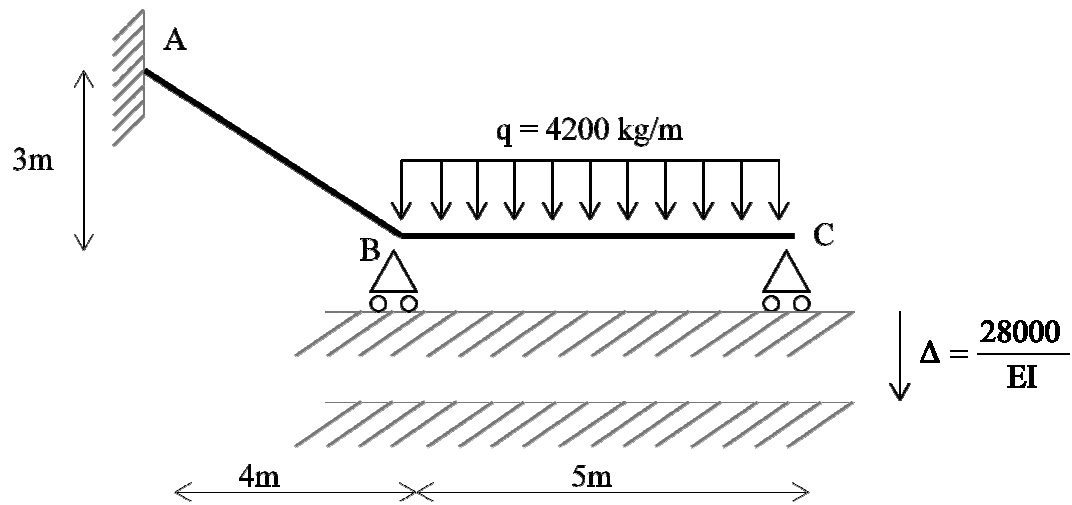


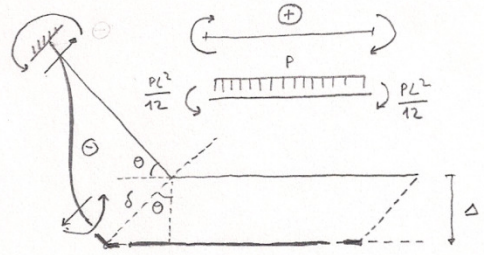
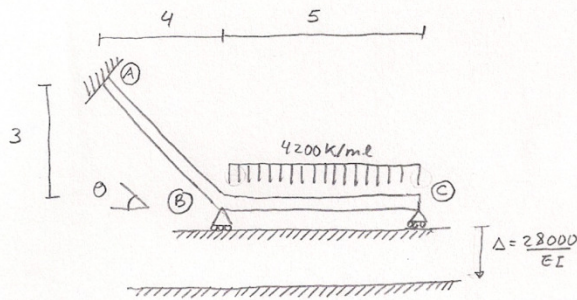
Ejercicio 9: por el método de Maney



Suponiendo  $EI$  constante y empleando el método de Maney, calcular:

- Los diagramas de solicitaciones
- Las reacciones en A, B y C
- La deformaa aproximada indicando los movimientos finales de B y C

# Solución



$$\delta \cos \theta = \Delta$$

$$\delta = \frac{\Delta}{\cos \theta} = \frac{35000}{EI}$$

$$\overset{\curvearrowright}{M}_{AB} = \frac{2EI}{5} (\theta + \theta_B - 3 \frac{35000}{5}) = \frac{2EI}{5} \cdot \theta_B - \frac{8400}{EI} = -2250 \text{ m.k} = M_{AB} \quad V_{AB} = V_{BA} = \frac{-2250 + 3900}{5} = 330 \text{ k}$$

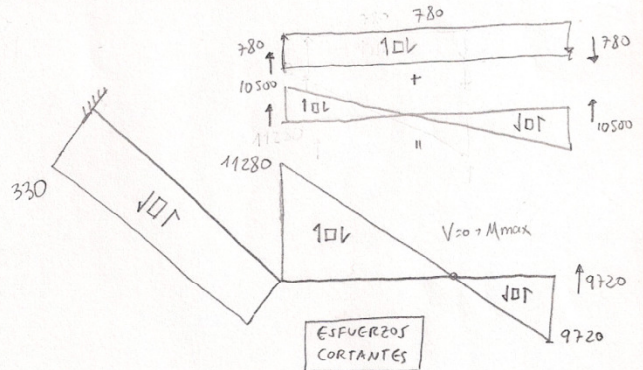
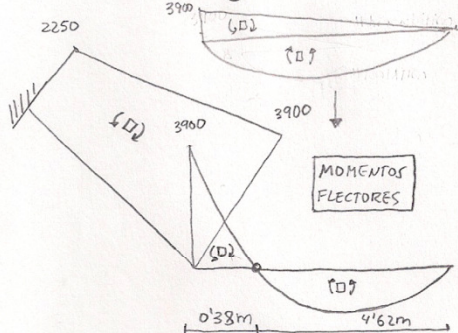
$$\overset{\curvearrowright}{M}_{BA} = \frac{2EI}{5} (2\theta_B + \theta - 3 \frac{35000}{5}) = \frac{4EI}{5} - \frac{8400}{EI} = 3900 \text{ m.k} = M_{BA}$$

$$\overset{\curvearrowright}{M}_{BC} = \frac{2EI}{5} (2\theta_B + \theta_C + \theta) - \frac{25 \cdot 4200}{12} = \frac{2EI}{5} (2\theta_B + \theta_C) - 8750 = -3900 \text{ m.k} = M_{BC} \quad V_{BC} = V_{CB} = \frac{-3900}{5} = -780 \text{ k}$$

$$\overset{\curvearrowright}{M}_{CB} = \frac{2EI}{5} (2\theta_C + \theta_B) + \frac{25 \cdot 4200}{12} = \frac{2EI}{5} (2\theta_C + \theta_B) + 8750 = 0 = M_{CB}$$

$$M_{BA} + M_{BC} = 0 \rightarrow \frac{4EI}{5} - \frac{8400}{EI} + \frac{2EI}{5} (2\theta_B + \theta_C) - 8750 = 0 \rightarrow 4\theta_B + \theta_C = 42375 \quad \left. \begin{array}{l} \theta_B = 15375/EI \\ \theta_C = -18625/EI \end{array} \right\}$$

$$M_{CB} = 0 \rightarrow \frac{2EI}{5} (2\theta_C + \theta_B) + 8750 = 0 \rightarrow \theta_B + 2\theta_C = -21875$$



OBTENCIÓN DEL PTO DE INFLEXIÓN =

$$\sum M = 0$$

$$4200 \cdot x \cdot \frac{x}{2} - 9720 \cdot x = 0$$

$$x \approx 4.62 \text{ m}$$

REACCIONES EN LOS APYOS A, B Y C =

$$\sum M_A = 0$$

$$2250 + R_B \cdot 4 + 9720 \cdot 9 = 4200 \cdot 5 \cdot (4 + 2.5)$$

$$\uparrow R_B = 11692.5 \text{ k}$$

$$\sum F_V = 0$$

$$R_A + 11692.5 + 9720 = 4200 \cdot 5$$

$$\uparrow R_A = -4421.5 \text{ k}$$

$$\uparrow R_C = 9720 \text{ k}$$

