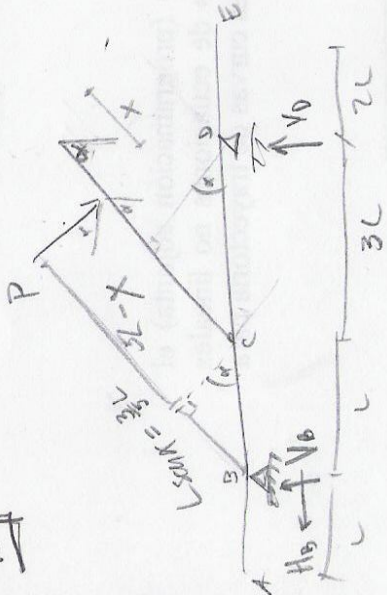


P21

Ejercicio 6.

$$\sin \alpha = \frac{3}{5}$$

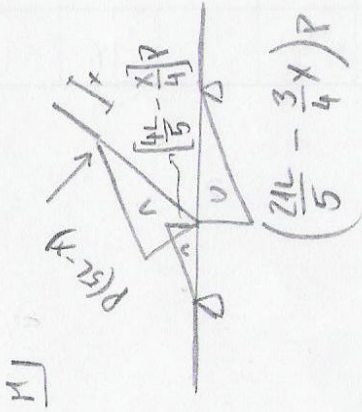
$$\cos \alpha = \frac{4}{5}$$



$$H_B = P \cos \alpha = \frac{4P}{5}$$

$$V_B = \left[\frac{3P}{5} L - \frac{1}{2} P \right] \frac{1}{4L} = \left[\frac{7}{5} - \frac{1}{4} \right] P$$

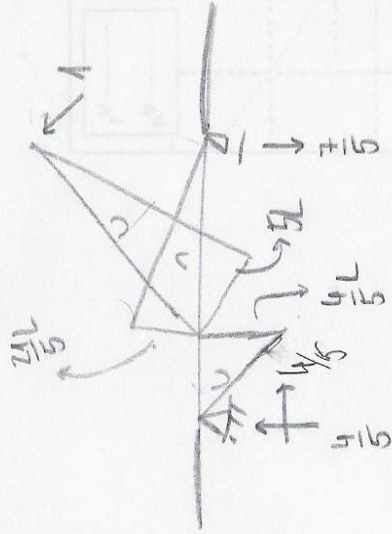
$$V_B = \frac{3}{5} P - \left(\frac{7}{5} - \frac{1}{4} \right) P = \left(\frac{1}{4} - \frac{7}{5} \right) P$$



1,0

$$\left(\frac{21L}{5} - \frac{3}{4} P \right) P$$

R1

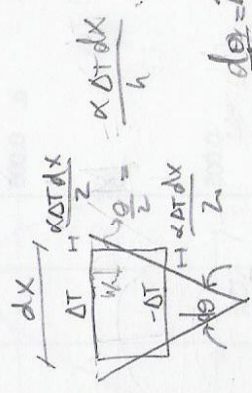


1,0

$$f_M = \frac{3L}{4} \cdot \frac{1}{2} \cdot \frac{5L}{4} + \left(\frac{3L}{4} \right)^2 \cdot \frac{1}{2} \cdot \frac{5L}{4}$$

$$f_M = \frac{125L^3}{3} + \frac{441}{25} \cdot \frac{L^3}{4} = \frac{1409}{25} \cdot \frac{L^3}{4}$$

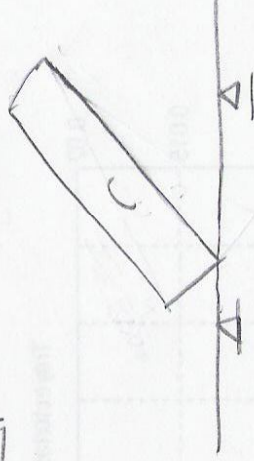
$$\Delta \theta = \frac{1}{EI} \left(\frac{3L}{4} \right) \cdot \frac{5L}{4} + \left(\frac{3L}{4} \right)^2 \cdot \frac{1}{2} \cdot \frac{5L}{4}$$



$$\frac{d\theta}{dx} = \frac{2\alpha \Delta t}{h}$$

(curvatura)

AT



0,5

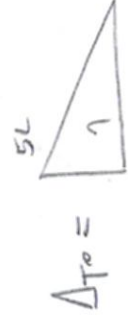
(No se genera momento)

0,5

$$\Delta\theta = -\left[\frac{1}{6} P(5L - x) \cdot (2 \cdot 5L + x) \cdot \frac{5L - x}{EI} + \frac{1}{3} \left(\frac{4L}{5} - \frac{x}{4}\right) P \cdot \frac{4}{5} L \cdot \frac{L}{EI} + \frac{1}{3} \left(\frac{21L}{5} - \frac{3}{4} x\right) P \cdot \frac{21L}{5} \cdot \frac{L}{EI}\right]$$

$$\Delta\theta = -\frac{P}{EI} \left(\frac{x^3}{6} - \frac{943}{60} L^2 x + \frac{1488}{25} L^3 \right)$$

0,5
1.º caso enunciado dice 3!!



$$\Delta T_0 = \left(-\frac{L \Delta T}{h} \right) \cdot \left(\frac{L \Delta T}{h} \right) \cdot 5L = -\frac{1}{8} 5L \cdot 5L \cdot \frac{L \Delta T}{h}$$

$$= -25 P \frac{L^4}{h EI}$$

0,5

$$f_M \cdot R_A + \Delta\theta + \Delta T_0 = \Delta_{real} = 0 \leftarrow 0,5$$

$$R_A = \frac{P}{\cancel{25}} \left(\frac{x^3}{6} - \frac{943}{60} L^2 x + \frac{1488}{25} L^3 + 25 \frac{L^4}{h} \right)$$

%

$$R_A = \frac{25}{1488} P \left(\frac{1}{6} \frac{x^3}{L^3} - \frac{943}{60} \frac{x}{L} + \frac{1488}{25} + 25 \frac{L}{h} \right) \leftarrow 0,5$$

• Momento máximo se produce en C hacia la derecha:

$$M_{max} = \left(\frac{21L}{5} - \frac{3}{4} x \right) P - \frac{21}{5} L \cdot R_A$$

0,5

$\frac{35}{196} PL (\%)$

$$\text{Corre: } V_D = \left(\frac{7}{5} - \frac{x}{4L} \right) P - \frac{7}{5} \cdot R_A$$

0,5

$$\left(V_D = \left(\frac{x}{4L} - \frac{4}{5} \right) P + \frac{4}{5} R_A \right)$$

