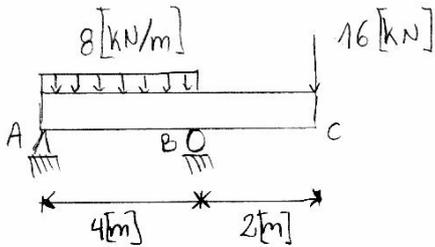


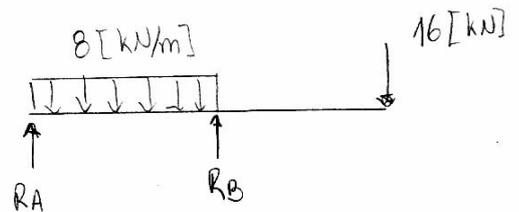
Pauta ejercicio 1

P1)



1) Cálculo de reacciones

del:



• $\sum F_y = 0$

$$\Rightarrow R_A + R_B = 8 \text{ [kN/m]} \cdot 4 \text{ [m]} + 16 \text{ [kN]}$$

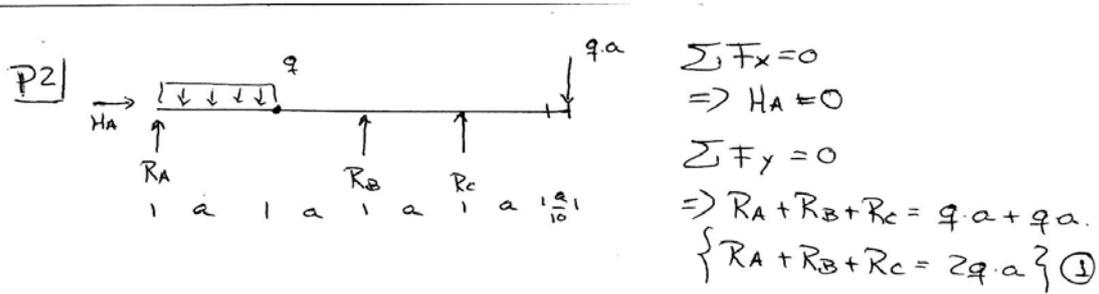
$$R_A + R_B = 48 \text{ [kN]} \quad (1)$$

• $\sum M_A = 0$

$$\Rightarrow R_B \cdot 4 \text{ (m)} = 8 \text{ [kN/m]} \cdot 4 \text{ [m]} \cdot 2 \text{ [m]} + 16 \text{ [kN]} \cdot 6$$

$$\Rightarrow \boxed{R_B = 40 \text{ [kN]}} \quad (2)$$

$$(2) \text{ en } (1) \Rightarrow \boxed{R_A = 8 \text{ [kN]}}$$



$\sum M_B = 0 \Rightarrow R_C \cdot a - qa \left\{ 2a + \frac{a}{10} \right\} + qa \left\{ a + \frac{a}{2} \right\} - R_A \cdot 2a = 0$
 $R_C \cdot a - qa \cdot \frac{21a}{10} + qa \cdot \frac{3a}{2} - R_A \cdot 2a = 0$
 $R_C \cdot a - \frac{3qa^2}{5} - R_A \cdot 2a = 0$
 $\{ R_C = R_A \cdot 2 + \frac{3qa}{5} \}$ ②

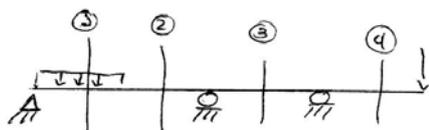
De la sumatoria de momentos internos en la bisagra tenemos:

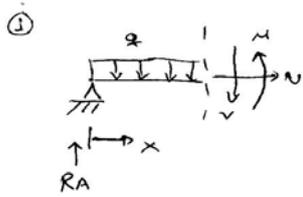
$\sum M_C = 0 \Rightarrow M = R_A \cdot a - \frac{q \cdot a^2}{2}$
 peso en una bisagra $M = 0$
 $\Rightarrow \{ R_A = \frac{qa}{2} \}$ ③

③ en ② $\Rightarrow R_C = qa + \frac{3qa}{5} \Rightarrow R_C = \frac{8qa}{5}$

③ y ② en ① $\Rightarrow \frac{qa}{2} + \frac{8qa}{5} + R_B = 2qa \Rightarrow R_B = -\frac{7 \cdot a}{20}$

en este caso tenemos que hacer 4 cortes.





$$\sum F_x = 0 \Rightarrow N = 0$$

$$\sum F_y = 0 \Rightarrow V = R_A - qx$$

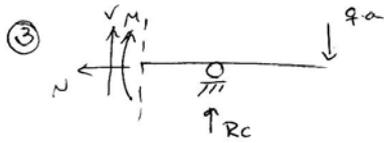
$$\sum M_c = 0 \Rightarrow M = R_A x - \frac{qx^2}{2}$$



$$\sum F_x = 0 \Rightarrow N = 0$$

$$\sum F_y = 0 \Rightarrow R_A - q \cdot a = V$$

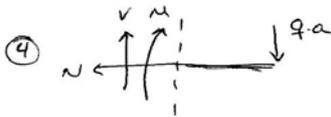
$$\sum M_c = 0 \Rightarrow M = R_A x - q \cdot a \left(x - \frac{a}{2}\right)$$



$$\sum F_x = 0 \Rightarrow N = 0$$

$$\sum F_y = 0 \Rightarrow V = q \cdot a - R_c$$

$$\sum M_c = 0 \Rightarrow M = R_c (2a - x) - q \cdot a \left(\frac{4a - x}{10}\right)$$



$$\sum F_x = 0 \Rightarrow N = 0$$

$$\sum F_y = 0 \Rightarrow V = q \cdot a$$

$$\sum M_c = 0 \Rightarrow M = -q \cdot a \left(\frac{4a}{10} - x\right)$$

diagrama de corte.

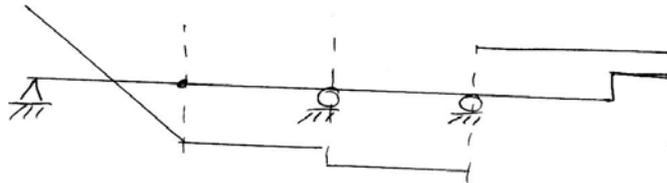


diagrama de moment.

