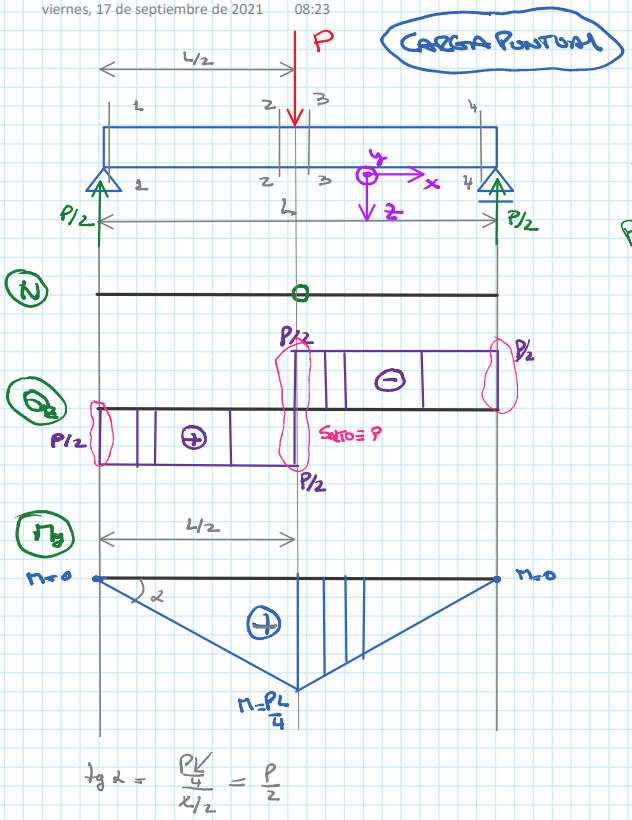
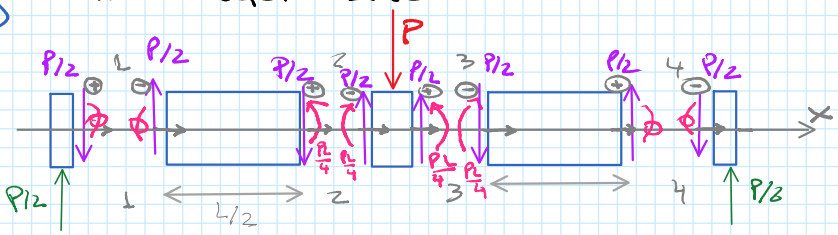
UBA_Diagramas de Esfuerzos internos

viernes, 17 de septiembre de 2021 08:23

CARGA PUNTUAL



SI EL TODO ESTÁ EN EQUILIBRIO LAS PARTES TAMBIÉN ESTÁN EN EQUILIBRIO



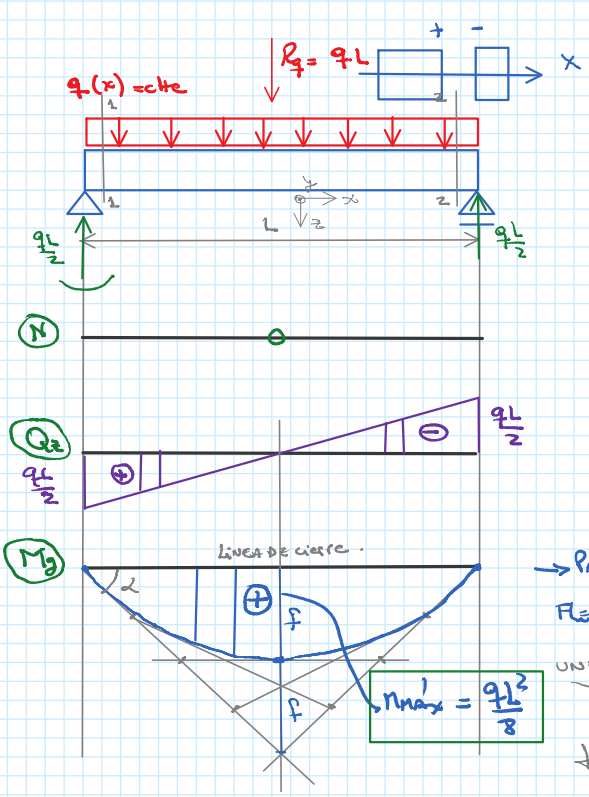
$$M_{Pac} = F \cdot d = P/2 \cdot \frac{L}{2} = \frac{PL}{4}$$

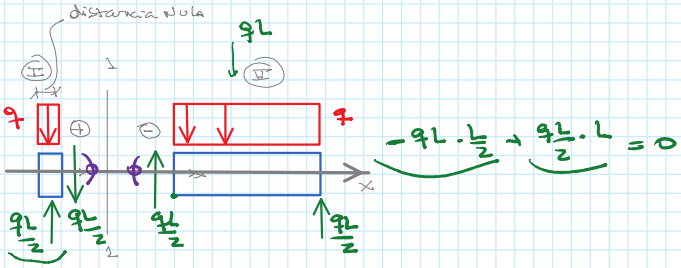
$$\frac{dN(x)}{dx} = -q_x(x)$$

$$\frac{dQ_z(x)}{dx} = -q_z(x) \quad (q_z(x) = 0)$$

$$\frac{dM_y(x)}{dx} = Q_z(x)$$

CARGA DISTRIBUIDA CONSTANTE





$$\frac{dN(x)}{dx} = -q_x(x)$$

$$\frac{dQ_z(x)}{dx} = -q_z(x) \rightarrow \text{cte}$$

$$\frac{dM_y(x)}{dx} = Q_z(x) \rightarrow \text{LINEAL}$$

$\rightarrow$ CUADRÁTICO

$\rightarrow$ PARÁBOLA

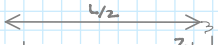
FLECHA $\rightarrow$ $f = \frac{qL^2}{8}$

UNIMOS MOMENTOS EXTREMOS

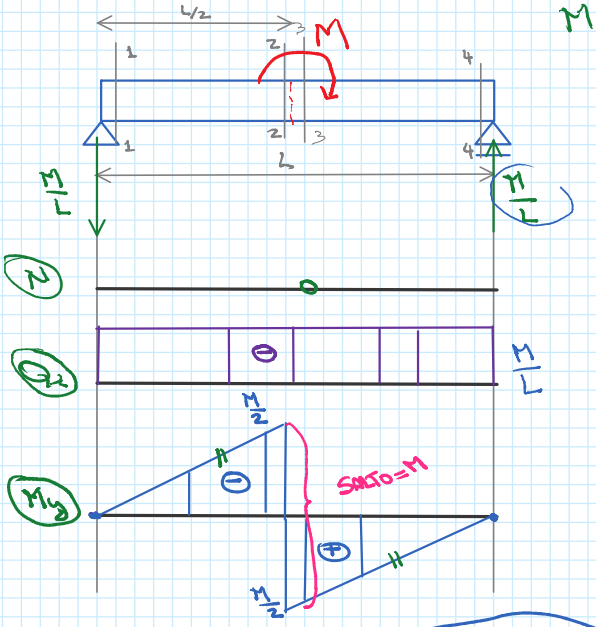
$\rightarrow$ LINEA DE CIERRE

$$tg\alpha = \frac{2f}{L/2} = 2\frac{qL^2}{8} \cdot \frac{2}{L} = \frac{qL}{2} = Q$$

CARGA PUNTUAL PAR

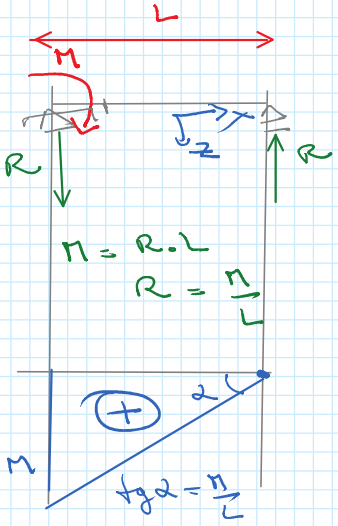


$M = R \cdot L$



$M = R \cdot L$

$M_{2-2} = \frac{M}{L} \cdot \frac{L}{2} = \frac{M}{2}$



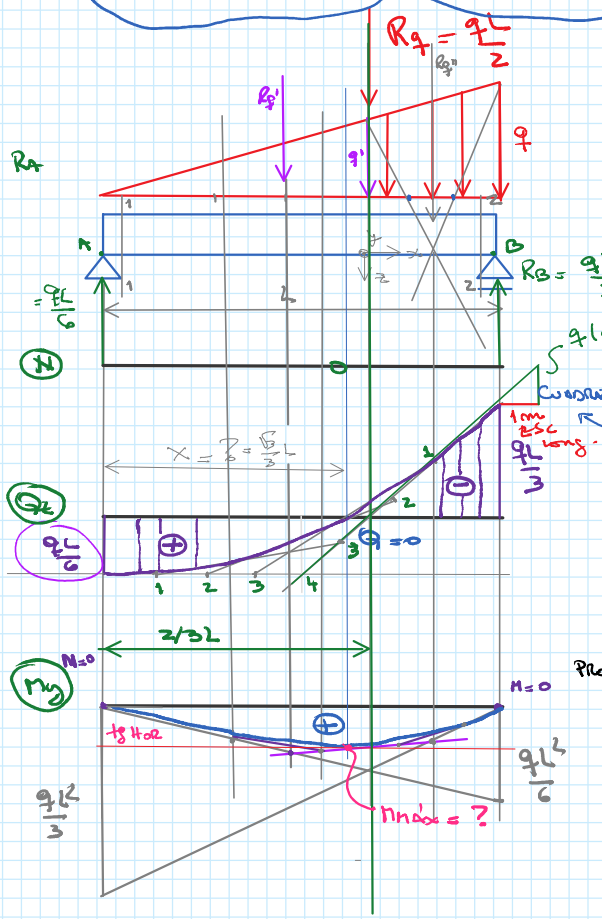
$\frac{dN(x)}{dx} = -q_x(x)$

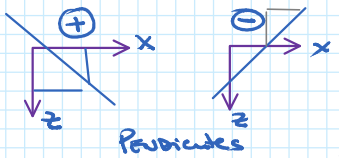
$\frac{dQ_z(x)}{dx} = -q_z(x)$ $= 0$

$\frac{dM_y(x)}{dx} = Q_z(x)$ cte

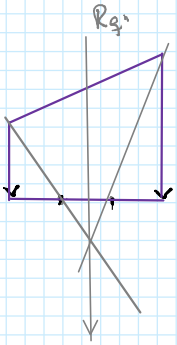
→ lineal.

CARGA DISTRIBUIDA LINEAL





Pendientes para mi tema local.



$\frac{dN(x)}{dx} = -q_x(x)$

$\frac{dQ_z(x)}{dx} = -q_z(x)$ $\neq 0$ Lineal

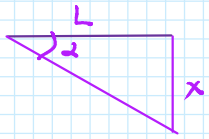
$\frac{dM_y(x)}{dx} = Q_z(x)$ cuadrática

función cúbica.

EXTREMOS EL PUNTO MEDIO

$\frac{qL}{6}$

PROP. DE LA PARÁBOLA → LAS TANGENTES SE CORTAN EN

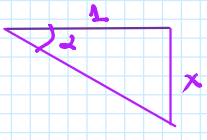


$tg\alpha = \frac{x}{L} =$

$x = \frac{qL^2}{6}$

REPRESENTO EN $X = L$

$\frac{qL^2}{6}$ → EN ESCALA DCH



$tg\alpha = \frac{x}{2} = \frac{qL}{6}$

$x = \frac{qL}{6}$