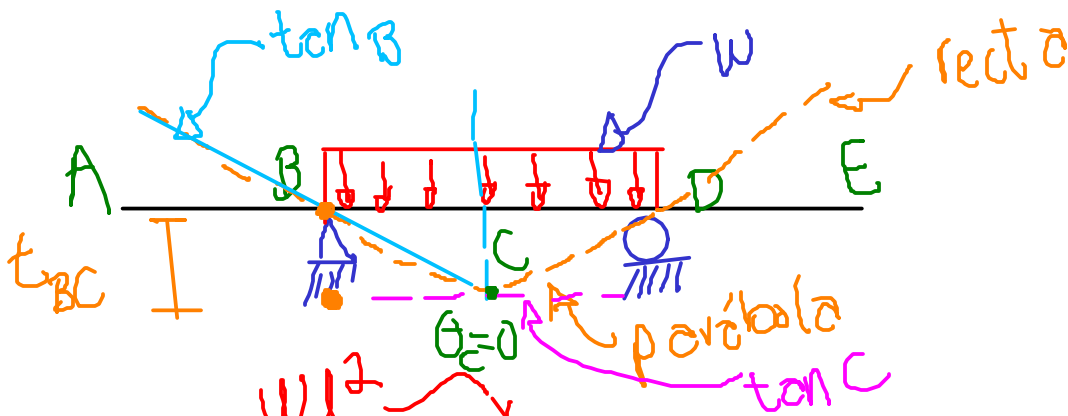
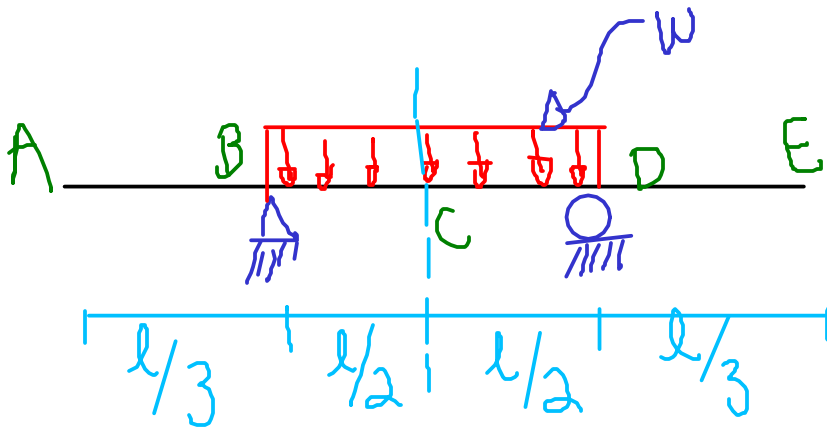


Para la viga, calcule la pendiente en B, y las deflexiones en el punto A y el centro del claro.



M

$$\frac{EI}{8EI} = \frac{wl^2}{8EI}$$

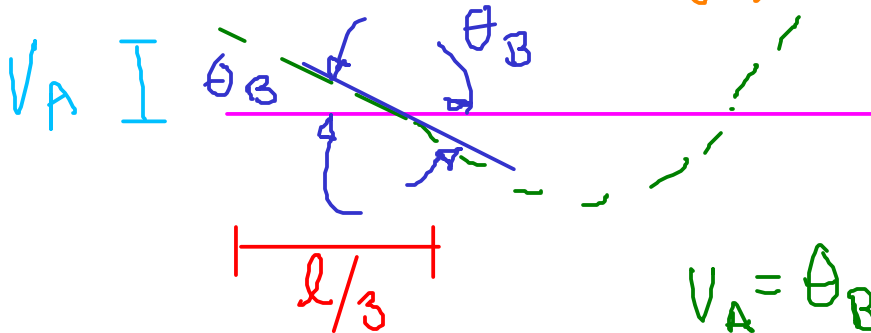
$$\frac{EI}{16} = \frac{5}{8} \left(\frac{l}{2} \right) = \frac{5}{8} \left(\frac{l}{2} \right) = \frac{5}{16} l$$

$$\theta_B = \theta_C + \Delta \theta_{CB}$$

$$\theta_B = 0 + \frac{2}{3} \left(\frac{l}{2} \right) \left(\frac{wl^2}{8EI} \right) = \frac{wl^3}{24EI}$$

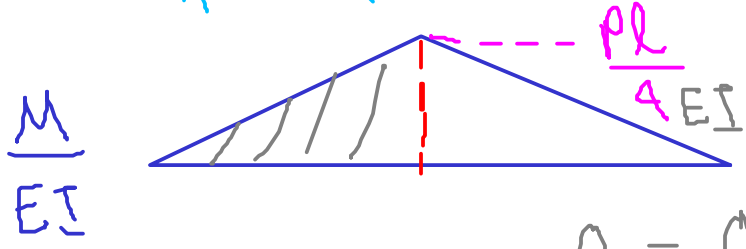
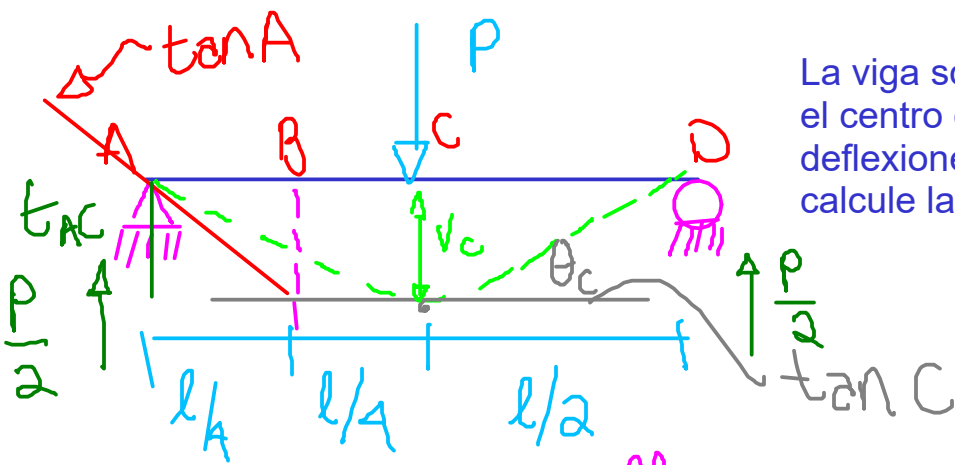
$$t_{BC} = V_C = \frac{2}{3} \left(\frac{l}{2} \right) \left(\frac{wl^2}{8EI} \right) \left(\frac{5}{8} \cdot \frac{l}{2} \right) = \frac{5wl^4}{48 \cdot 8EI}$$

$$= \frac{5wl^4}{384EI}$$



$$V_A = \theta_B l \rightarrow \frac{wl^3}{24EI} \left(\frac{l}{3} \right) = \frac{wl^4}{72EI}$$

La viga soporta una carga concentrada P en el centro del claro (punto C). Calcule las deflexiones en los puntos B y C. Asimismo, calcule la pendiente en A. EI es constante.



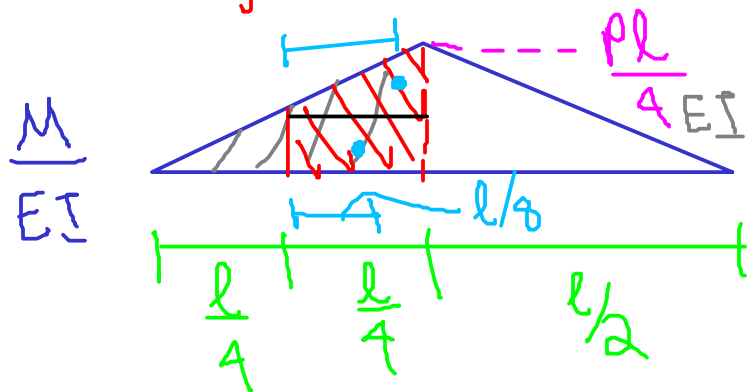
$$\theta_A = \theta_C + \Delta\theta_{CA}$$

$$= 0 + \frac{1}{2} \left(\frac{l}{2} \right) \left(\frac{Pl}{4EI} \right) = \frac{Pl^2}{16EI} \text{ rad.}$$

Deflexion en C

$$t_{AC} = v_c = \frac{1}{2} \left(\frac{l}{2} \right) \left(\frac{Pl}{4EI} \right) \left(\frac{2}{3} \cdot \frac{l}{2} \right) = \frac{Pl^3}{48EI}$$

Deflexion en B



$$\frac{Pl}{8}$$

$$\frac{Pl}{8}$$

$$v_B = v_C - t_{BC}$$

$$v_B = \frac{Pl^3}{48EI} - \frac{l}{4} \left(\frac{Pl}{8EI} \right) \left(\frac{l}{8} \right)$$

$$= \frac{Pl^3}{48EI} - \frac{1}{2} \left(\frac{l}{4} \right) \left(\frac{Pl}{8EI} \right) \left(\frac{2}{3} \cdot \frac{l}{4} \right)$$

$$= \frac{11Pl^3}{768EI}$$

