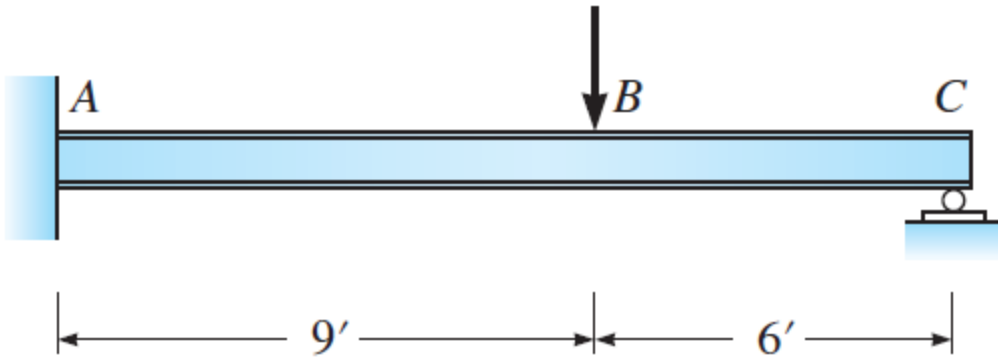
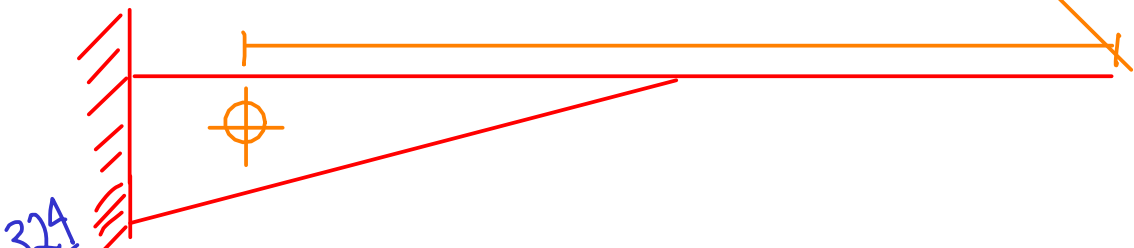
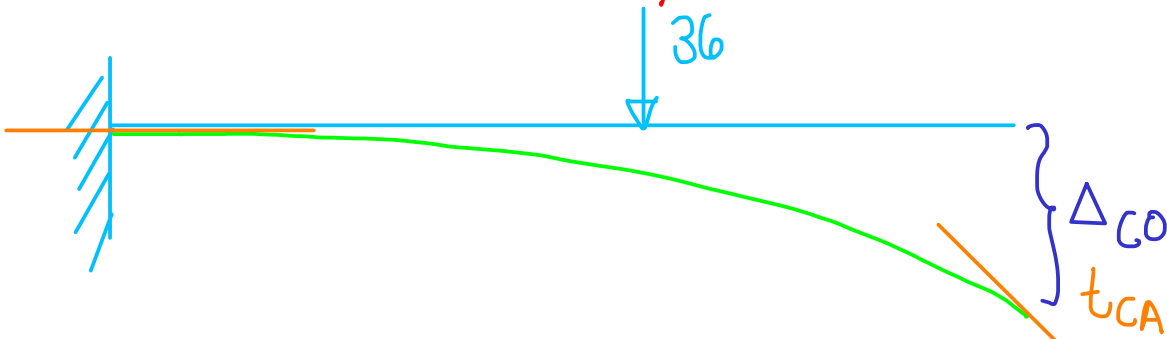


$$P = 36 \text{ kips}$$

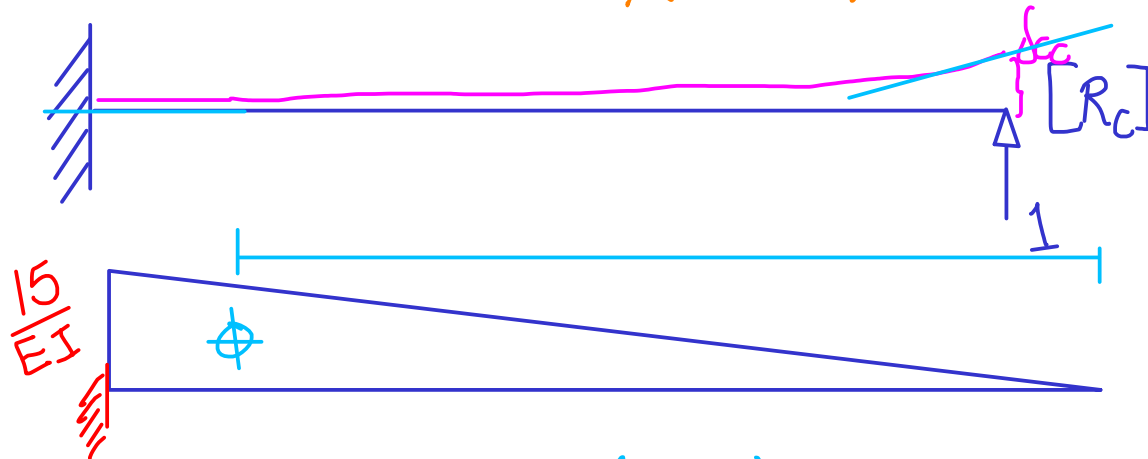


$$EI = \text{cte.}$$

Reacciones, V , M , θ_c , ¿dónde está la $\delta_{\text{máx}}$?



$$t_{CA} = \frac{1}{2} (9) \left(\frac{-324}{EI} \right) \left(6 + \frac{2}{3} \cdot 9 \right) = \frac{-17496}{EI} = \Delta_{C0}$$



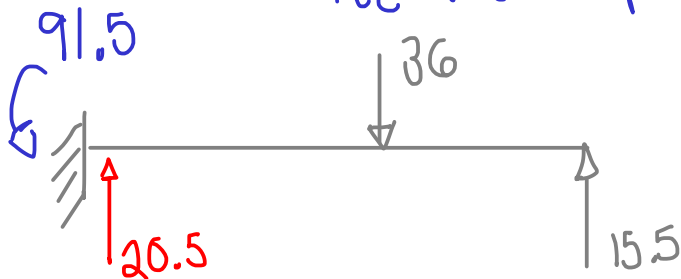
$$t_{CA} = \frac{1}{2} (15) \left(\frac{15}{EI} \right) \left(\frac{2}{3} \cdot 15 \right) = \frac{1125}{EI} = \delta_{Cc}$$

Ecuación de Compatibilidad

$$\Delta_{CO} + \delta_{CC} = 0$$

$$\frac{-17496}{EI} + \frac{1125}{EI} R_C = 0$$

$$R_C = 15.5 \text{ Kip.}$$

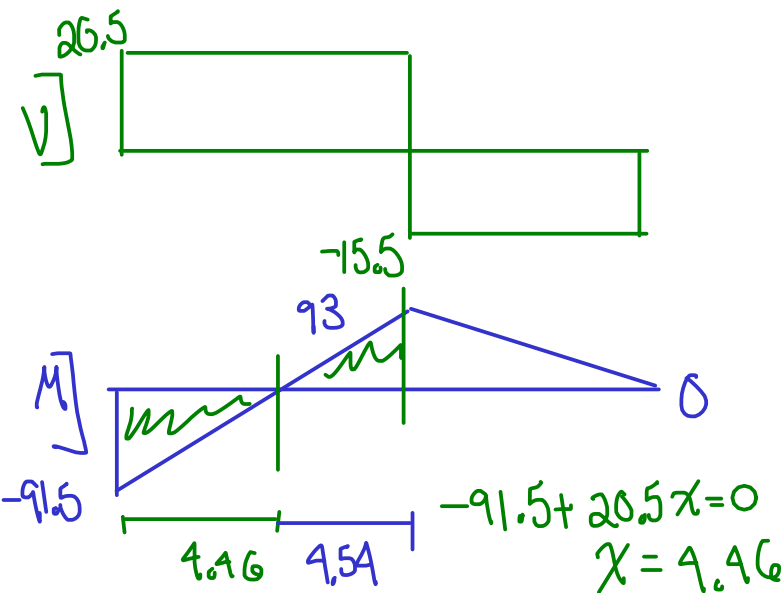


$$\sum F_y = A_y - 36 + 15.5 = 0$$

$$A_y = 20.5$$

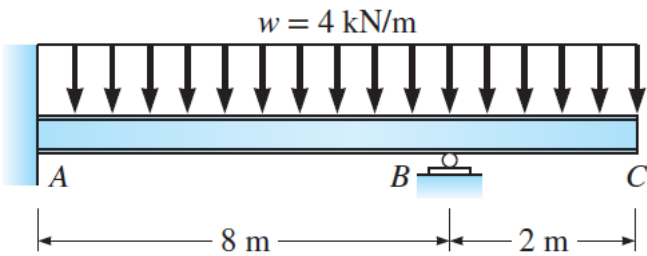
$$\sum M_A = M_A + 36(9) - 15.5(15) = 0$$

$$M_A = -91.5 \rightarrow M_A = 91.5 \curvearrowright$$



Punto defl. máx = $2x = 8.92 \text{ ft}$
a partir de la izquierda

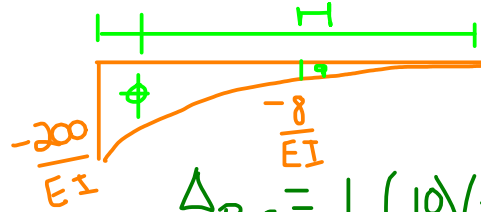
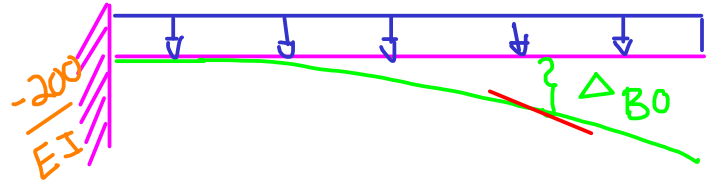
$$\theta_C = \frac{1}{2}(4.46)\left(\frac{-91.5}{EI}\right) + \frac{1}{2}(4.54)\left(\frac{93}{EI}\right) + \frac{1}{2}(6)\left(\frac{93}{EI}\right) = \frac{286.1}{EI}$$



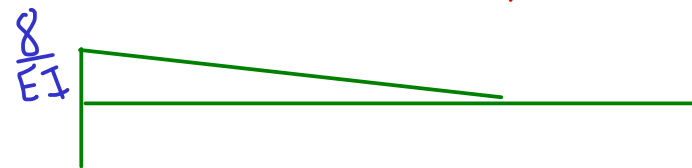
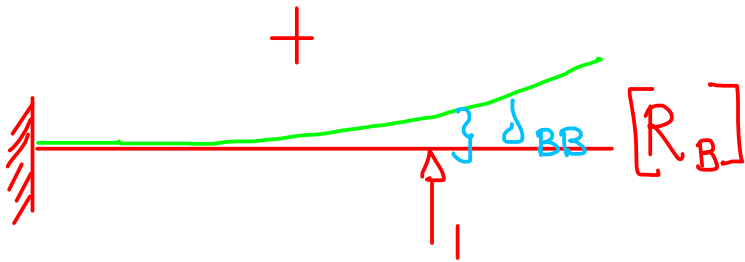
R, V, M, δ_C

$E = 29,000 \text{ Ksi}$

$I = 180 \text{ in}^4$



$$\Delta_{B0} = \frac{1}{3} (10) \left(\frac{-200}{EI} \right) \left(\frac{3}{4} \cdot 10 - 2 \right) - \frac{1}{3} (2) \left(\frac{-8}{EI} \right) \left(\frac{1}{4} \cdot 2 \right) = \frac{-366A}{EI}$$

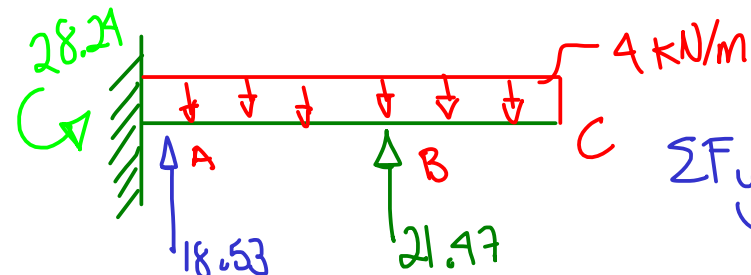


$$\delta_{BB} = \frac{1}{2} \left(\frac{8}{EI} \right) \left(\frac{8}{3} \right) = \frac{512}{3EI}$$

Ecuacon de Compatibilidad

$$\Delta_{B0} + \delta_{BB} R_B = 0$$

$$\frac{-366A}{EI} + \frac{512}{3EI} R_B = 0 \rightarrow R_B = \frac{687}{32} = 21.47$$

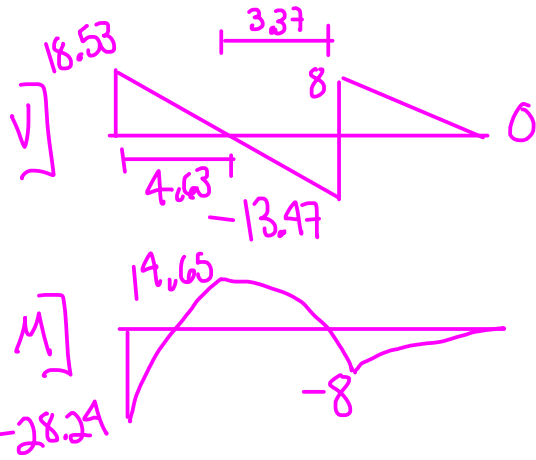


$$\sum F_y = -4(10) + 21.47 + A_y = 0$$

$$A_y = 18.53$$

$$\sum M_A = M_A + 4(10)(5) - 21.47(8) = 0$$

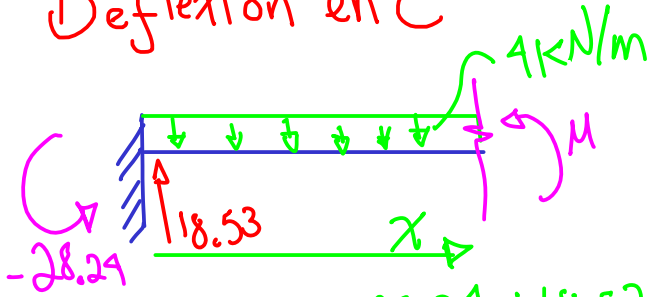
$$M_A = -28.24 = 28.24 \text{ C}^{\wedge}$$



$$18.53 - 4x = 0$$

$$x = 4.63$$

Deflexión en C



$$M = -28.24 + 18.53x - 4x\left(\frac{x}{2}\right)$$

$$= -2x^2 + 18.53x - 28.24$$

$$\theta = 0 \text{ \& } \delta = 0 \text{ cuando } x = 0$$

$$\int \frac{M}{EI} dx \rightarrow \theta$$

$$EI\theta = \int -2x^2 + 18.53x - 28.24 dx$$

$$EI\theta = \left(\frac{-2x^3}{3} + \frac{18.53x^2}{2} - 28.24x + C_1 \right) \Big|_0^8$$

$$EI\theta_B = \frac{-2(8)^3}{3} + \frac{18.53(8)^2}{2} - 28.24(8) = 25.7$$

$$\theta_B = \frac{25.7}{EI} = \frac{25.7 \text{ kN}\cdot\text{m}^2}{(2 \times 10^{11} \text{ Pa})(180 \text{ in}^4) \left(\frac{(0.0254 \text{ m})^4}{(1 \text{ in})^4} \right)} = 0.0017 \text{ rad.}$$

$$\Delta_i = (0.0017)(2,000 \text{ mm}) = 3.4 \text{ mm}$$

$$t_{C/B} = \frac{1}{3} (2) \left(\frac{-8}{EI} \right) \left(\frac{3}{4} \cdot 2 \right) = \frac{8 \text{ kNm}^3}{EI} \rightarrow t_{C/B} = 0.53 \text{ mm}$$

$$\Delta_C = 3.4 - 0.53 = 2.9 \text{ mm}$$

