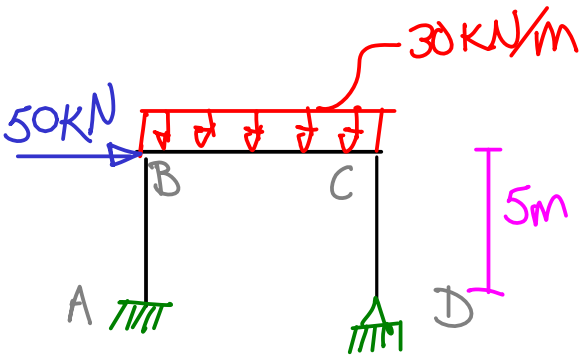
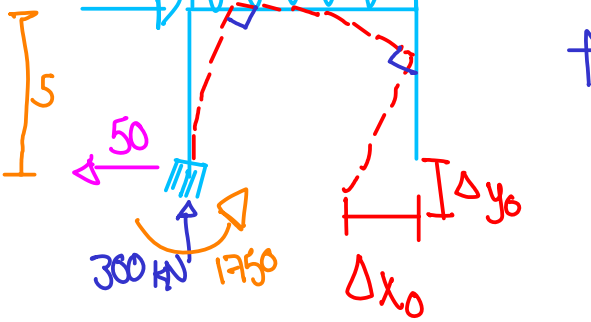
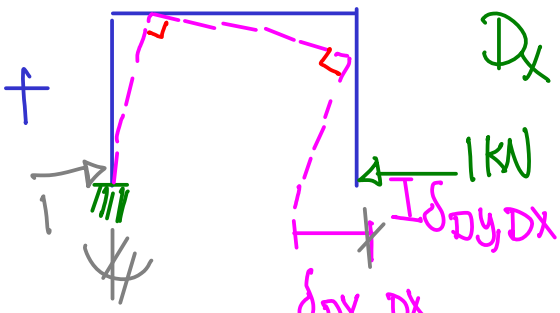


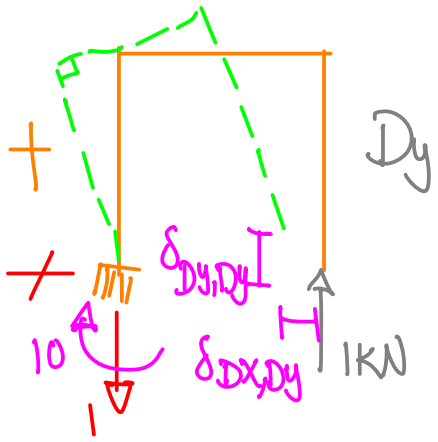
EI = constante

¿Diagramas?

¿Reacciones?







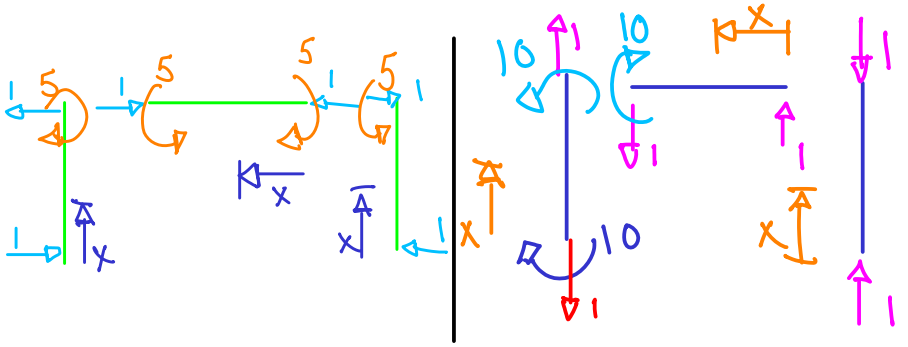
$\Sigma F_y = -30(10) + A_y = 0$

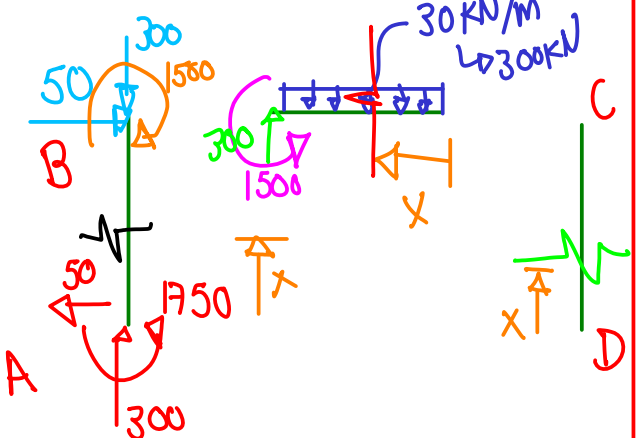
$A_y = 300 \uparrow$

$\Sigma F_x = 50 - A_x = 0$

$\rightarrow A_x = 50 \leftarrow$

$M_A = 50(5) + 30(10)(5) = 1750$





$M_B = 1750 - 50(5) = 1500$

Tramo	Origen	Límites	M_p	M_{Qx}	M_{Qy}
AB	A	0-5	$-1750+50x$	$-X$	10
BC	C	0-10	$-30x\left(\frac{x}{2}\right)$	-5	X
DC	D	0-5	0	X	0

Ec. Compat.

$$\Delta x_0 + \delta_{DX,DX} Dx + \delta_{DX,DY} Dy = 0$$

$$\Delta y_0 + \delta_{DY,DX} Dx + \delta_{DY,DY} Dy = 0$$

$$\Delta_{xo} = \int_0^5 \frac{(-1750+50x)(-x)}{EI}dx + \int_0^{10} \frac{(-15x^2)(-5)}{EI}dx + \int_0^5 \frac{(0)(x)}{EI}dx = \frac{44791.7\ kN\,m^3}{EI}$$

$$\Delta_{yo} = \int_0^5 \frac{(-1750+50x)(10)}{EI}dx + \int_0^{10} \frac{(-15x^2)(x)}{EI}dx + \int_0^5 \frac{(0)(0)}{EI}dx = -\frac{118{,}750\ kNm^3}{EI}$$

$$\delta_{DX,DX} = \int_0^5 \frac{(-x)(-x)}{EI}dx + \int_0^{10} \frac{(-5)(-5)}{EI}dx + \int_0^5 \frac{(x)(x)}{EI}dx = \frac{333.33}{EI}$$

$$\delta_{DY,DY} = \int_0^5 \frac{(10)(10)}{EI}dx + \int_0^{10} \frac{(x)(x)}{EI}dx + \int_0^5 \frac{(0)(0)}{EI}dx = \frac{833.33}{EI}$$

$$\delta_{DX,DY} = \delta_{DY,DX} = \int_0^5 \frac{(-x)(10)}{EI}dx + \int_0^{10} \frac{(-5)(x)}{EI}dx + \int_0^5 \frac{(x)(0)}{EI}dx = -\frac{375}{EI}$$

$$\begin{cases} \alpha: & 44791 + 333.33D_x - 375D_y = 0 \\ \beta: & -118750 - 375D_x + 833.33D_y = 0 \end{cases}$$

De $\alpha \rightarrow 333.33D_x = -44791 + 375D_y$

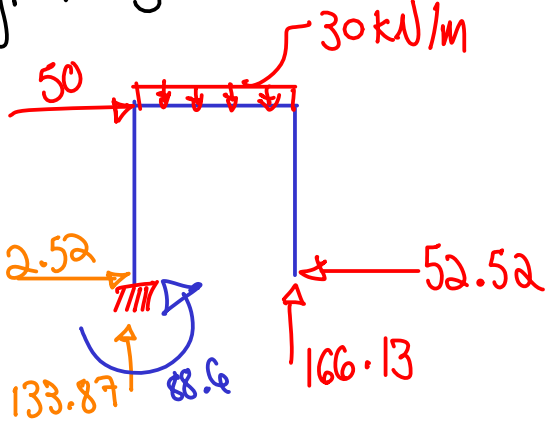
$$D_x = \frac{-44791 + 375D_y}{333.33}$$

En $\beta \rightarrow -118{,}750 - 375\left(\frac{-44791 + 375D_y}{333.33}\right) + 833.33D_y = 0$

$$D_y = 166.13\ (\uparrow)$$

$$D_x = 52.52\ (\leftarrow)$$

Diagramas



$\Sigma F_x = 50 - 52.52 + R_{Ax} = 0$

$\rightarrow R_{Ax} = 2.52$

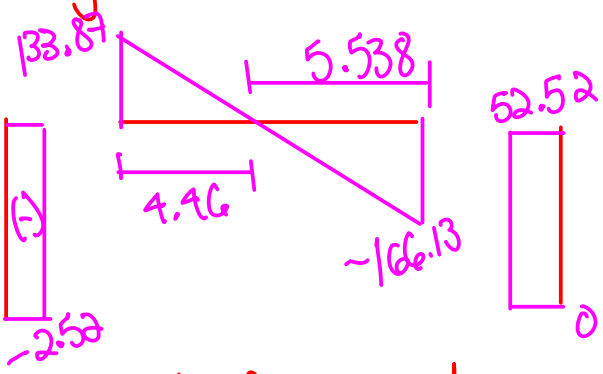
$\Sigma F_y = -30(10) + 166.13 + R_{Ay} = 0$

$\rightarrow R_{Ay} = 133.87$

$M \rightarrow (50)(5) + 30(10)(5) - 166.13(10) = 0$

$\rightarrow M = 88.6$

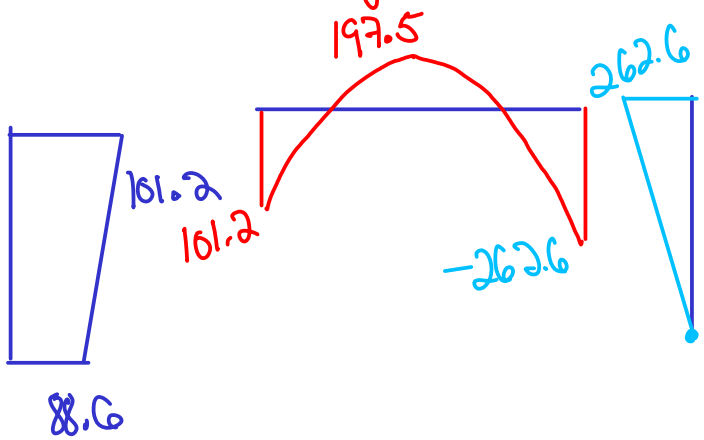
Diagrama de fuerza cortante



$133.87-30(10)$
$=-166.13$

$133.87-30x=0$
$x=4.46$

Diagrama de Momento flexionante



$-101.2+\frac{1}{2}(4.46)(133.87)$
$=197.5$

$197.5-\frac{1}{2}(5.538)(166.13)$
$=-262.6$

$52.52\times5=262.6$