

Tramo	Origen	Límites	M_p	M_{an}	M_{av}
AB	A	0-8	0	-x	0
AD	A	8-24	$25(x-8)$	-x	0
ED	E	0-20	$-445 - 25x(\frac{x}{2}) + 65x$	-24	$20-x$

Ecuaciones de Compatibilidad

$$\Delta_{AOx} + \delta_{Dx, Dx} R_{AH} + \delta_{Dx, Dy} R_{Ay} = 0$$

$$\Delta_{AOy} + \delta_{Dy, Dx} R_{AH} + \delta_{Dy, Dy} R_{Ay} = 0$$

$$\Delta_{AO_x} = \int_0^8 \frac{(0)(-x)}{EI} dx + \int_8^{24} \frac{(25x-200)(-x)}{EI} dx + \int_0^{20} \frac{(-445-1.25x^2+65x)(-24)}{EI} dx$$

$$= \frac{-78,133.33 \text{ Kft}^3}{EI}$$

$$\Delta_{AO_y} = \int_0^8 \frac{(0)(0)}{EI} dx + \int_8^{24} \frac{(25x-200)(0)}{EI} dx + \int_0^{20} \frac{(-445-1.25x^2+65x)(20-x)}{EI} dx$$

$$= \frac{-19,000 \text{ Kft}^3}{EI}$$

$$\delta_{DX,DX} = \int_0^8 \frac{(-x)(-x)}{EI} dx + \int_8^{24} \frac{(-x)(-x)}{EI} dx + \int_0^{20} \frac{(-24)(-24)}{EI} dx = \frac{16,128 \text{ Kft}^3}{EI}$$

$$\delta_{DY,DY} = \int_0^8 \frac{(0)(0)}{EI} dx + \int_8^{24} \frac{(0)(0)}{EI} dx + \int_0^{20} \frac{(20-x)(20-x)}{EI} dx = \frac{2,666.67}{EI}$$

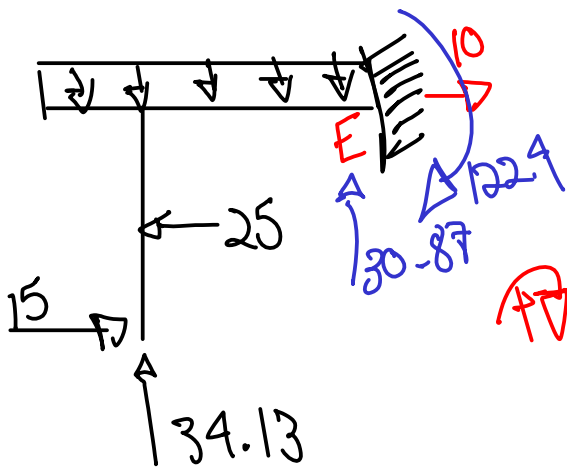
$$\delta_{DX,DY} = \delta_{DY,DX} = \int_0^8 \frac{(-x)(0)}{EI} dx + \int_8^{24} \frac{(-x)(0)}{EI} dx + \int_0^{20} \frac{(-24)(20-x)}{EI} dx$$

$$= \frac{-4800 \text{ Kft}^3}{EI}$$

$$-78,133.33 + 16,128 R_{AH} - 4800 R_{Ay} = 0$$

$$-19,000 - 4800 R_{AH} + 2,666.67 R_{Ay} = 0$$

$$\hookrightarrow R_{AH} = 15 \rightarrow \quad \& \quad R_{Ay} = 31.13 \uparrow$$



$$\sum F_x = 15 - 25 + R_{Ex} = 0 \rightarrow R_{Ex} = 10$$

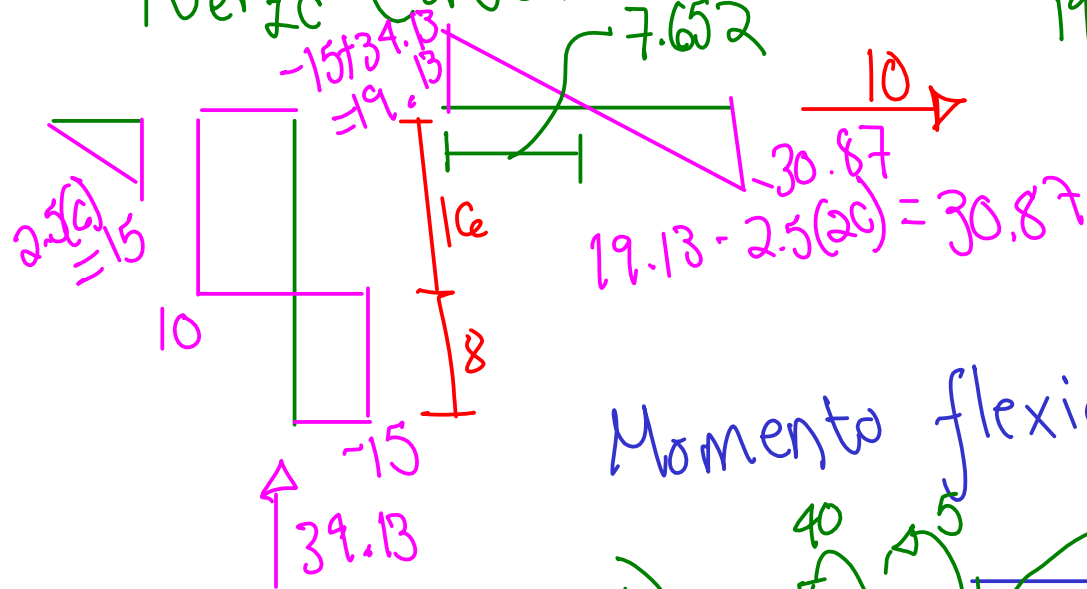
$$\sum F_y = 34.13 - 2.5(20) + R_{Ey} = 0 \rightarrow R_{Ey} = 30.87$$

$$\sum M_E = M_E + 34.13(20) - 15(16) - 2.5(20)(13) + 25(16) = 0 \rightarrow M_E = 122.9$$

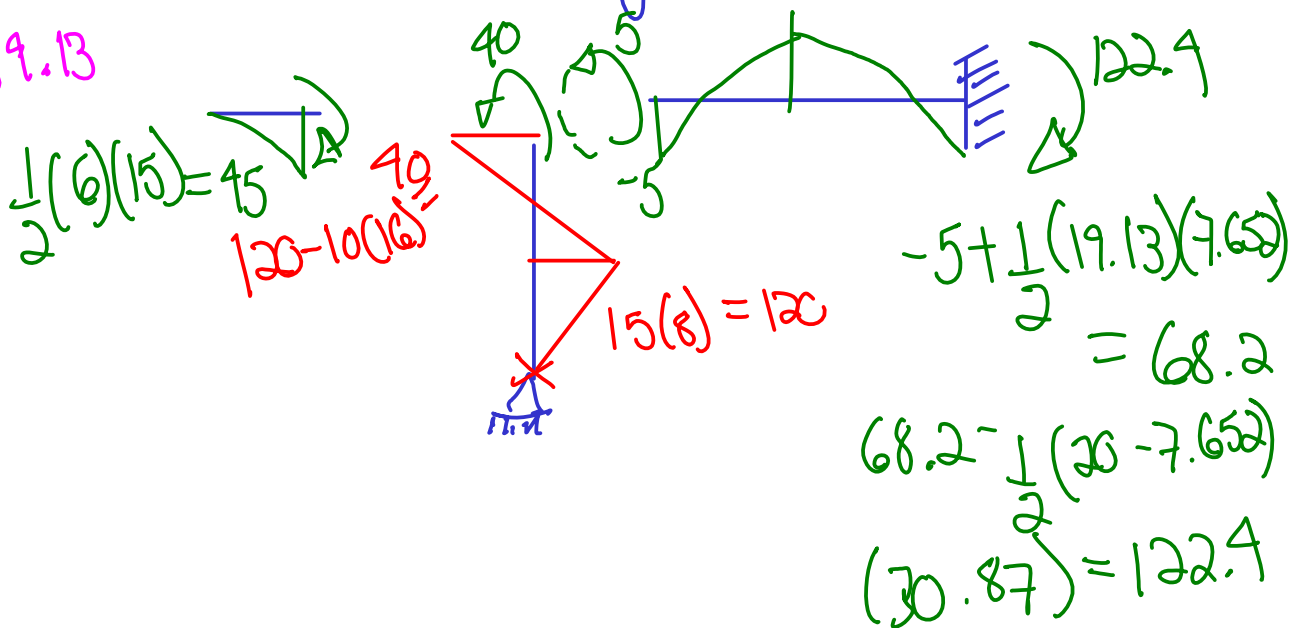
Fuerza Cortante.

$$19.13 - 2.5x = 0$$

$$x = 7.652$$



Momento flexionante



$$\frac{1}{2}(6)(15) = 45$$

$$120 - 10(16) = 40$$

$$-5 + \frac{1}{2}(19.13)(7.652) = 68.2$$

$$68.2 - \frac{1}{2}(20 - 7.652)(30.87) = 122.9$$