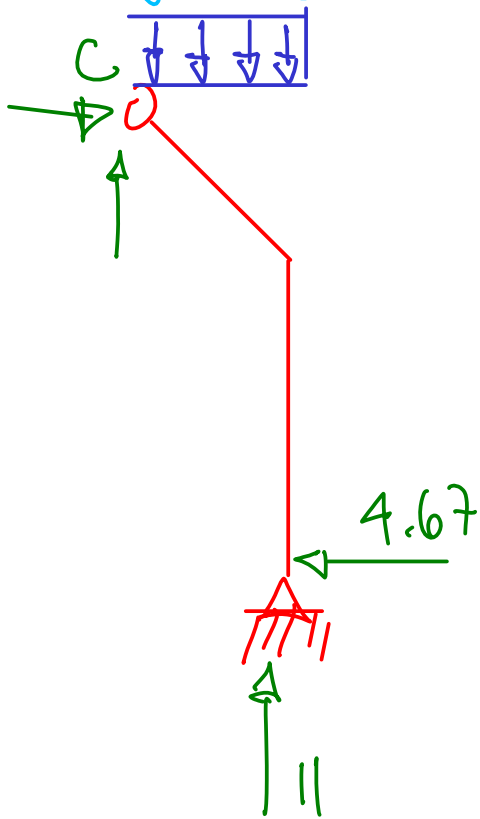


$$\begin{aligned} \sum M_A &= (6)(20) \\ &+ (0.4 \times 40) \left(\frac{40}{2} \right) \\ &- E_y(40) = 0 \\ \therefore E_y &= 11 \text{ K} \uparrow \end{aligned}$$

$$\sum F_y = A_y + 11 - 0.4(40) = 0 \quad \therefore A_y = 5 \text{ K} \uparrow$$

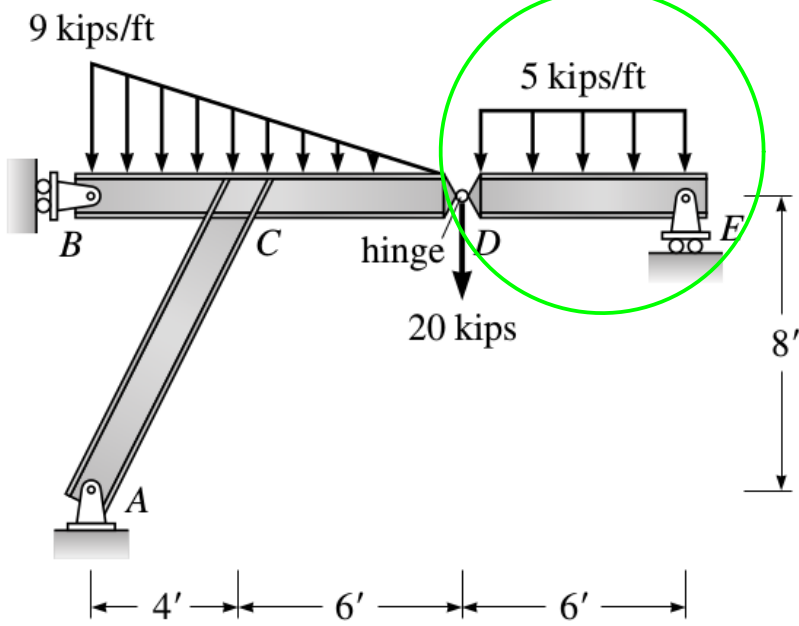


$$\begin{aligned} \sum M_C &= (0.4 \times 20)(10) - 11(20) \\ &+ E_x(20 + 10) = 0 \end{aligned}$$

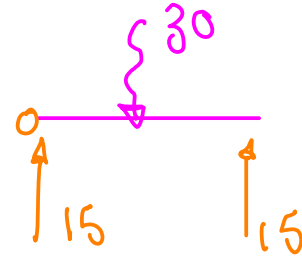
$$E_x = 4.67 \text{ K} \leftarrow$$

$$\sum F_x = 6 - 4.67 - A_x = 0$$

$$A_x = 1.33 \leftarrow$$

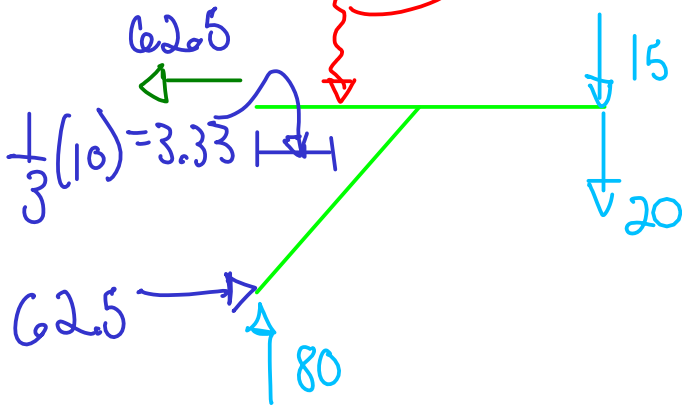


CL Derecho



$$\therefore E_y = 15 \text{ K } \uparrow$$

CL Izq.



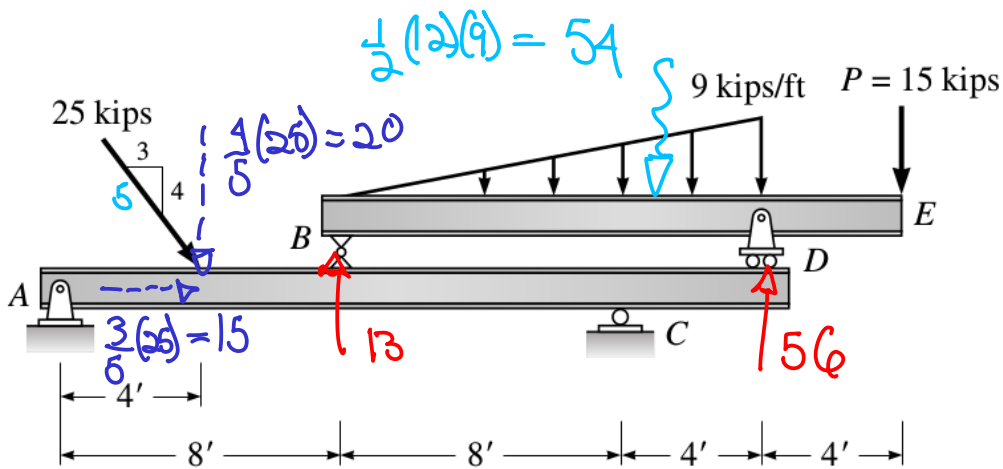
$$\sum M_A = -B_x(8)$$

$$+ \frac{1}{2}(4+6)(9)\left(\frac{1}{3} \cdot 10\right) + 35(10) = 0$$

$$B_x = 62.5 \text{ K } \leftarrow$$

$$\sum F_x = -62.5 + A_x = 0 \quad \therefore A_x = 62.5 \text{ K } \rightarrow$$

$$\sum F_y = -45 - 35 + A_y = 0 \quad \therefore A_y = 80 \text{ K } \uparrow$$



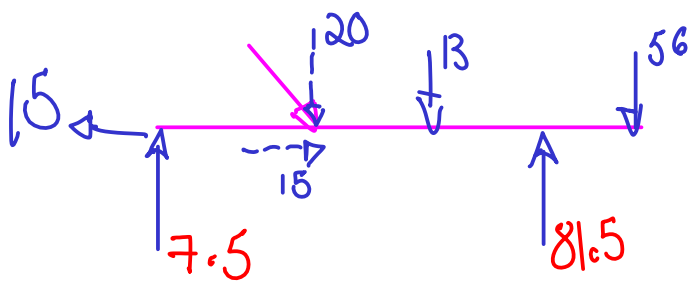
Viga BD

$$\sum M_B = 54 \left(\frac{2}{3} \cdot 12 \right) + 15(8+4+4) - D_y(8+4) = 0$$

$$D_y = 56 \text{ K} \uparrow$$

$$\sum F_y = -54 - 15 + 56 + B_y = 0 \quad \therefore B_y = 13 \text{ K} \uparrow$$

Viga AD



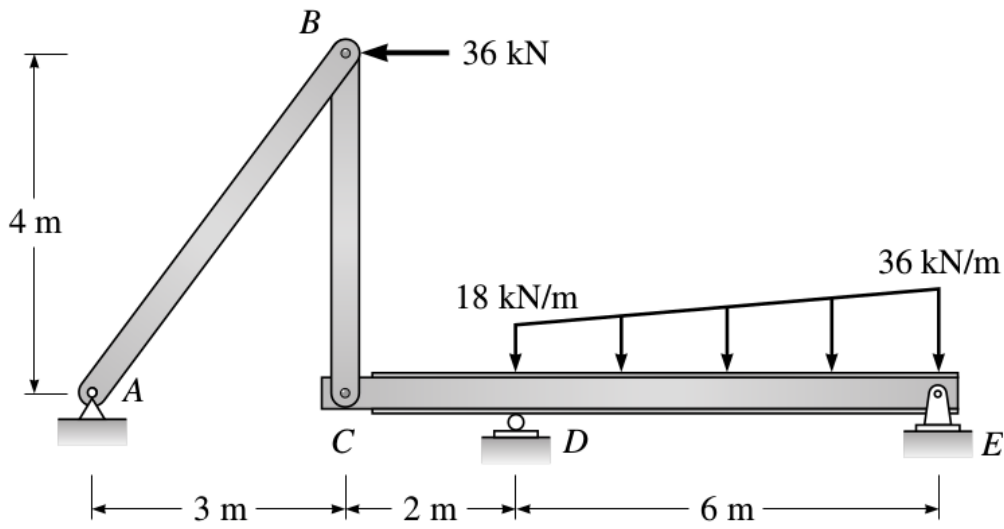
$$\sum M_A = 20(4) + 13(8) - C_y(16) + 56(20) = 0$$

$$C_y = 81.5 \text{ K} \uparrow$$

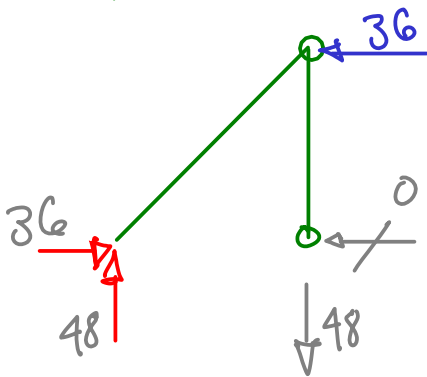
$$\sum F_y = 81.5 - 20 - 13 - 56 + A_y = 0$$

$$A_y = 7.5 \text{ K} \uparrow$$

$$\sum F_x = 15 - A_x = 0 \quad \therefore A_x = 15 \text{ K} \leftarrow$$

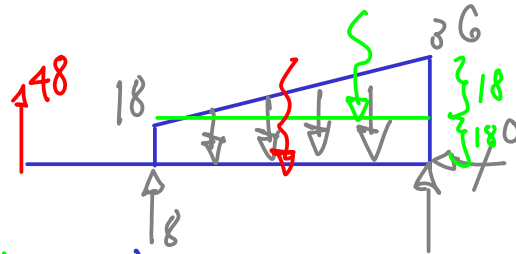


Armadura



$$\sum M_C = 36(4) + A_y(3) = 0 \therefore A_y = 48 \text{ kN} \uparrow$$

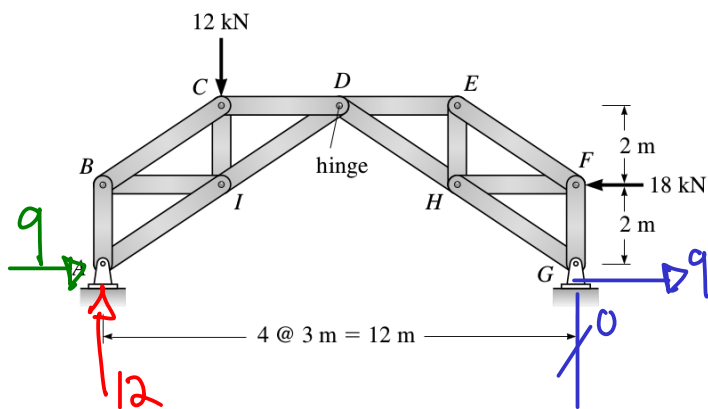
$$\sum F_x = -36 + A_x = 0 \therefore A_x = 36 \text{ kN} \rightarrow$$



$$\sum M_E = \frac{1}{2} (6)(18) \left(\frac{1}{3} \cdot 6\right) + (6)(18) \left(\frac{6}{2}\right) - 48(8) - D_y(6) = 0$$

$$D_y = 8 \text{ kN} \uparrow$$

$$\sum F_y = 48 + 8 - (6)(18) - \frac{1}{2} (6)(18) + E_y = 0 \therefore E_y = 106 \text{ kN} \uparrow$$



$$\sum M_A = 12(3) - 18(2) + G_y(12) = 0$$

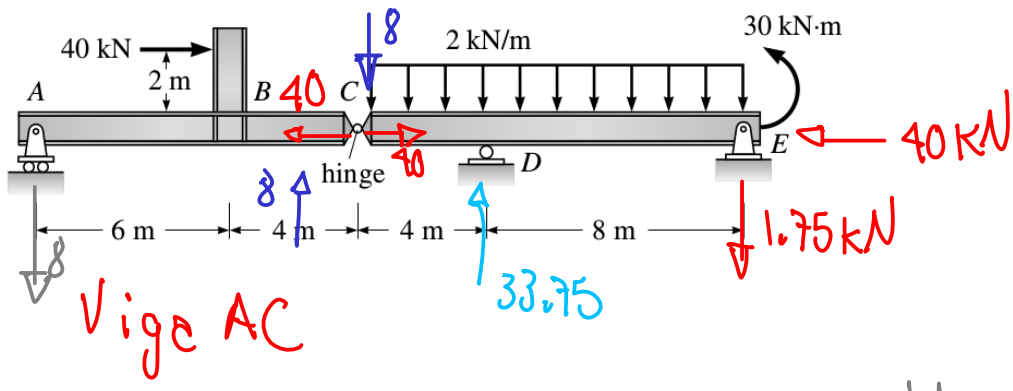
$$G_y = 0$$

$$\sum F_y = -12 + A_y + 0 = 0$$

$$A_y = 12 \uparrow$$

$$\sum M_D = 12(3) - 12(6) + A_x(4) = 0 \therefore A_x = 9 \text{ kN} \rightarrow$$

$$\sum F_x = 9 - 18 - G_x = 0 \therefore G_x = 9 \text{ kN} \rightarrow$$



Viga AC

$$\sum M_C = 40(2) - A_y(10) = 0 \quad \therefore A_y = 8 \text{ kN} \downarrow$$

Viga CE

$$\sum M_E = 30 + 2(12)\left(\frac{12}{2}\right) - D_y(8) + 8(12) = 0 \quad \therefore D_y = 33.75 \text{ kN} \uparrow$$

$$\sum F_y = -8 - 2(12) + 33.75 + E_y = 0 \quad \therefore E_y = -1.75 \therefore E_y = 1.75 \downarrow$$

$$\sum F_x = 40 - E_x = 0 \quad \therefore E_x = 40 \text{ kN} \leftarrow$$