

Viga B-E

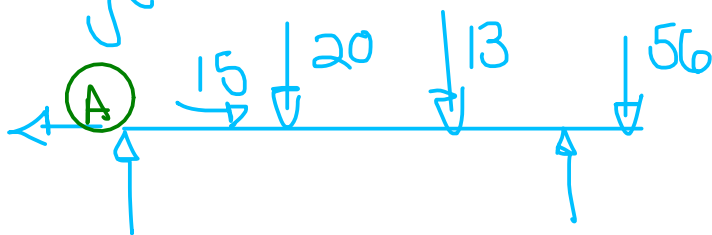
$$\sum M_B = \frac{1}{2}(12')(9 \text{ k/ft})\left(\frac{2}{3} \cdot 12\right) + 15(16) - R_D(12) = 0$$

$$\hookrightarrow R_D = 56 \text{ k} \uparrow$$

$$\sum F_y = 0 = 56 - \frac{1}{2}(12)(9) - 15 + R_B = 0$$

$$\hookrightarrow R_B = 13 \text{ k} \uparrow$$

Viga AD



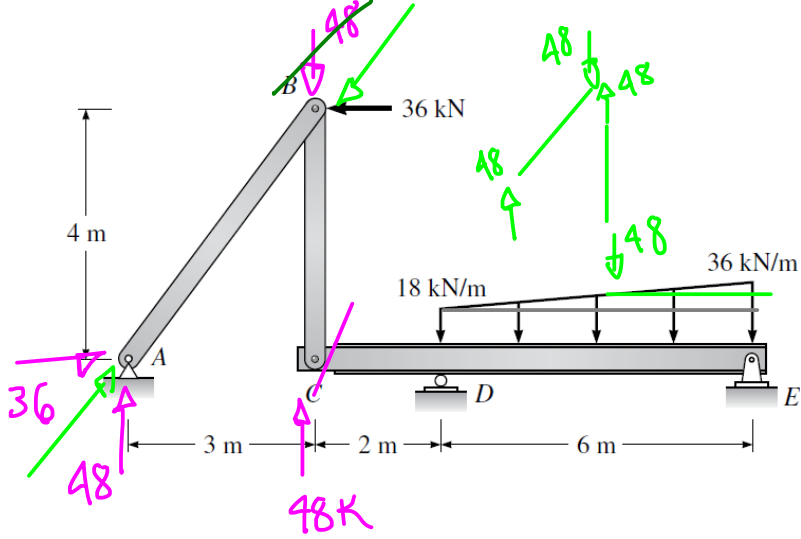
$$\sum M_A = 20(4) + 13(8) - R_C(16) + 56(20) = 0$$

$$\hookrightarrow R_C = 81.5 \text{ k} \uparrow$$

$$\sum F_y = -20 - 13 - 56 + 81.5 + R_{Ay} = 0$$

$$\hookrightarrow R_{Ay} = 7.5 \text{ k} \uparrow$$

$$\sum F_x = 0 = 15 - R_{Ax} = 0 \rightarrow R_{Ax} = 15 \text{ k} \leftarrow$$

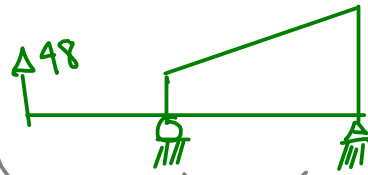


$$\sum M_C^{(I2Q)} = 0$$

$$= 36(1) - R_{Ay}(3) = 0$$

$$R_{Ay} = 48 \text{ kN} \uparrow$$

Lado derecho

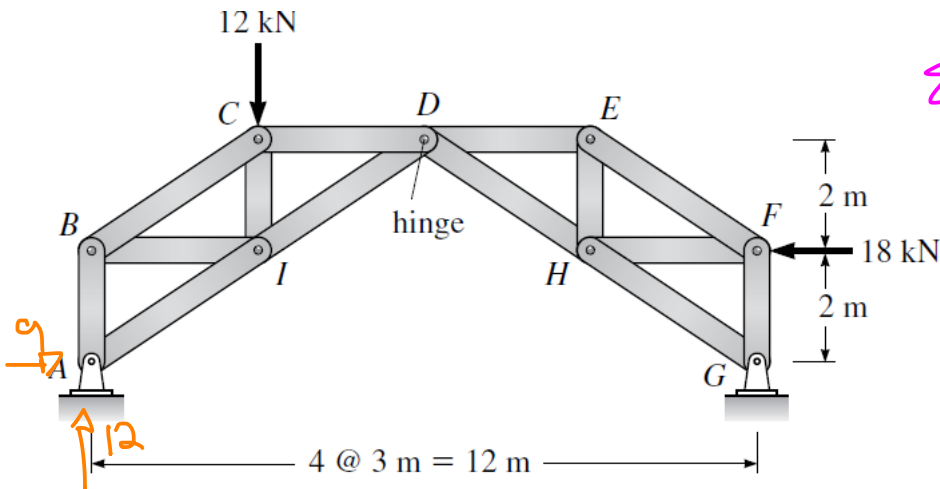


$$\sum M_E = 48(8) - R_D(6) + (18)(6)(3) + \frac{1}{2}(6)(18)\left(\frac{1}{3} \cdot 6\right) = 0$$

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

$$\sum F_y = 48 - 18(6) - \frac{1}{2}(6)(18) + 8 + R_E = 0$$

$$\hookrightarrow R_E = 106 \text{ kN} \uparrow$$



$$\sum M_A = (12)(3)$$

$$- 18(2) - G_y(12) = 0$$

$$G_y = 0$$

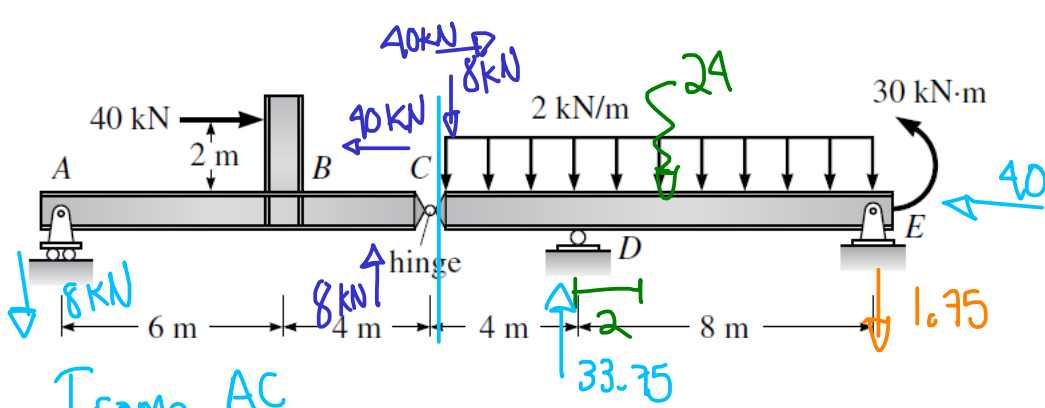
$$\sum F_y = R_{Ay} - 12 + 0 = 0$$

$$\therefore \rightarrow R_{Ay} = 12 \text{ kN} \uparrow$$

$$\sum M_D = 0 = 12(3) - 12(6) + R_{Ax}(4) = 0$$

$$\hookrightarrow R_{Ax} = 9 \text{ kN} \rightarrow$$

$$\sum F_x = 9 - 18 + R_{Gx} = 0 \rightarrow R_{Gx} = 9 \text{ kN} \rightarrow$$



Tramo AC

$$\sum M_C = 40(2) - R_{Ay}(10) = 0 \rightarrow R_{Ay} = 8 \text{ kN} \downarrow$$

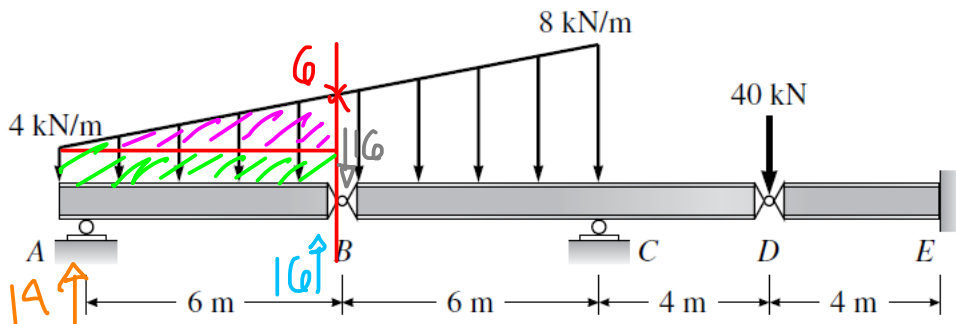
Tramo CE

$$\sum M_D = -8(4) + 2(2) - R_{Ey}(8) - 30 \text{ kN}\cdot\text{m} = 0$$

$$R_{Ey} = -1.75 \text{ kN} = 1.75 \text{ kN} \downarrow$$

$$\sum F_y = -8 - 2(12) - 1.75 + R_D = 0 \rightarrow R_D = 33.75 \text{ kN} \uparrow$$

$$\sum F_x = 40 - R_{Ex} = 0 \rightarrow R_{Ex} = 40 \text{ kN} \leftarrow$$



Tramo AB

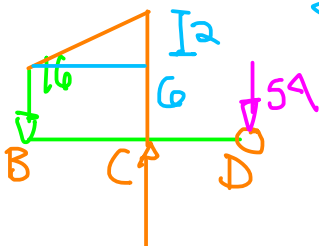
$$\sum M_B = R_{Ay}(6) - (6)(4)(3) - \frac{1}{2}(6)(2)\left(\frac{1}{3} \cdot 6\right) = 0$$

$$\rightarrow R_{Ay} = 14 \text{ kN} \uparrow$$

$$\sum F_y = 14 - (6)(6) - \frac{1}{2}(6)(2) + R_{1C} = 0$$

$$\rightarrow R_{1C} = 16 \text{ kN} \uparrow$$

Tramo BD



$$\sum M_D = -16(10) - 6(6)(7) - \frac{1}{2}(6)(2)$$

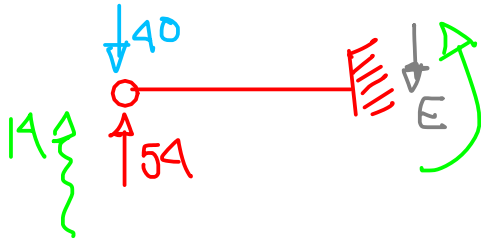
$$\left(\frac{1}{3} \cdot 6 + 4\right) + R_C(4) = 0$$

$$\rightarrow R_C = 112 \text{ kN} \uparrow$$

$$\Sigma F_y = -16 - 6(a) - \frac{1}{2}(a)(a) + 112 + R_{I_0} = 0$$

$$\hookrightarrow R_{I_0} = -54 \text{ kN}$$

Tramo DE



$$\Sigma F_y = 0 = -40 + 54 - R_{Ey} = 0$$

$$R_{Ey} = 14 \downarrow \text{ kN}$$

$$\Sigma M_E = 0 = 14(4) - M_E = 0$$

$$\hookrightarrow M_E = 56 \text{ kNm}$$