

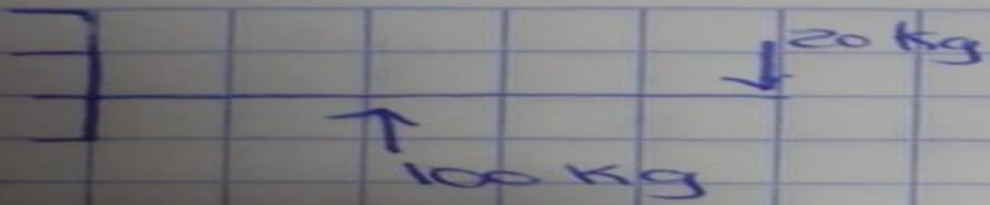


ISAAC GABRIEL AGUILAR CANO

ESTATICA PARA LA ARQUITECTURA

ARQUITECTO: PEDRO ALBERTO LOPEZ GARCIA

EJERCICIOS



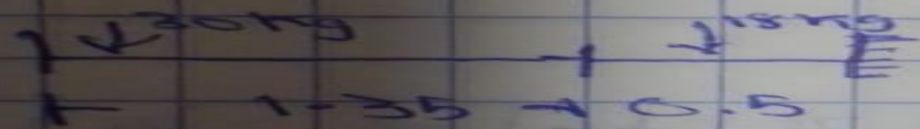
$$\uparrow 1.30 \quad \uparrow 1.60 \quad \downarrow$$

$$1.30 \times 100 = 130$$

$$2.9 \times 20 = -58$$

$$130 \text{ Kg}\cdot\text{m} - 58 \text{ Kg}\cdot\text{m} = 0$$

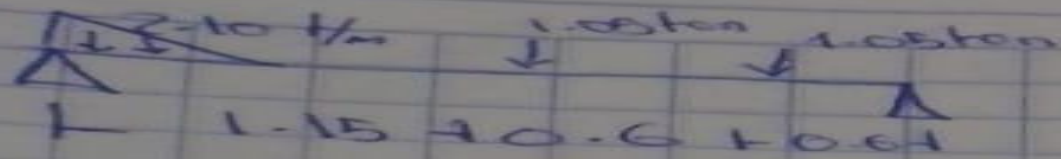
$$MA = 72 \text{ Kg}\cdot\text{m}$$



$$MA = (+ 18 \text{ Kg} \cdot 50 \text{ m}) + (+ 30 \text{ Kg} \cdot 1.35 \text{ m})$$

$$MA = (+ 9 \text{ Kg}\cdot\text{m}) + (+ 55.5) = 0$$

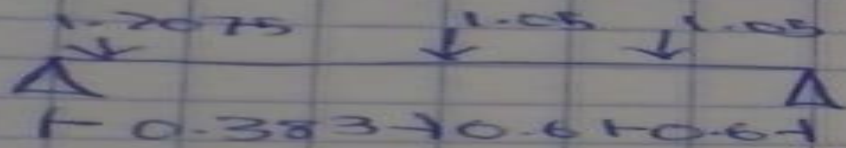
$$MA = + 64.5 \text{ Kg}\cdot\text{m} = 0$$



$$P = w \cdot L \Rightarrow 2.10 / 1.15 \text{ m} = 1.826 \text{ ton}$$

$$P = 2.10 \cdot 1.15 = 2.415 \text{ ton}$$

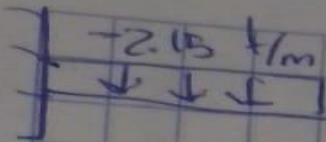
$$OP = 1.15 / 3 = 0.383$$



$$MA = (1.2075 \cdot 0.383) + (-1.05 \cdot 1.75) + (-1.05 \cdot 2.75)$$

$$MA = -0.462 - 1.8375 - 2.8875$$

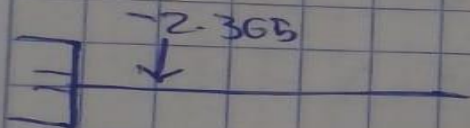
$$MA = 5.18 \text{ ton}\cdot\text{m}$$



$\uparrow 3.10 \text{ ton}$
 $\vdash 1.10 \vdash 0.60 \vdash$

$$P = w \cdot L \rightarrow 2.15 \text{ t/m} \cdot 1.10 = -2.365$$

$$u_p = L/2 \rightarrow 1.10/2 = 0.55$$

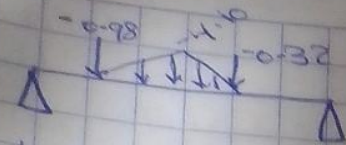


$\vdash 0.55 \vdash 0.55 \vdash 0.60 \vdash$

$$M_A = (-2.365 \cdot 0.55) + (3.10 \cdot 1.7) = 0$$

$$M_A = -1.300 + 5.27 =$$

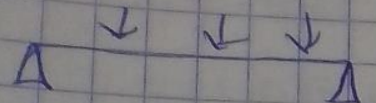
$$M_A = 3.97 \text{ t.m}$$



$\vdash 1.10 \vdash 2.60 \vdash 1.10 \vdash$

$$P = \frac{w \cdot L}{2} \rightarrow \frac{4.10 \cdot 2.60}{2} = 5.33$$

$$u_p = L/2 \rightarrow \frac{2.60}{2} = 1.30$$



$\vdash 1.10 \vdash 1.34 \vdash 1.10 \vdash$

$$M_A = (-0.98 \text{ ton} \cdot 1.10) + (-5.33 \text{ ton} \cdot 2.4) + (0.32 \cdot 3.7) + R_B \cdot 4.8$$

$$M_A = -1.078 - 12.792 \text{ ton} \cdot 1.184 + R_B \cdot 4.8$$

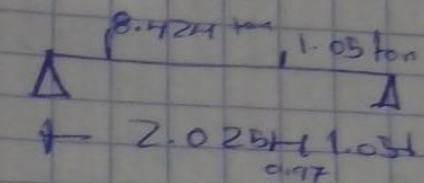
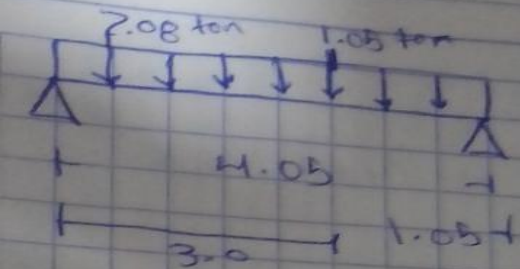
$$M_A = 1.5054 = R_B = \frac{15.054}{4.8} = 3.136 \text{ ton}$$

$$\sum F_y = R_A - 0.98 \text{ ton} - 5.33 \text{ ton} - 0.32 \text{ ton} + 3.136 \text{ ton}$$

$$R_A = 3.494 \text{ ton}$$

$$\sum F_y = 3.494 \text{ ton} - 0.98 \text{ ton} - 5.33 - 0.32 \text{ ton} - 3.136 \text{ ton}$$

$$\sum F_x = 0$$



$$M_A = (-8.424 \text{ ton} \cdot 2.025) + (-1.05 \cdot 3) =$$

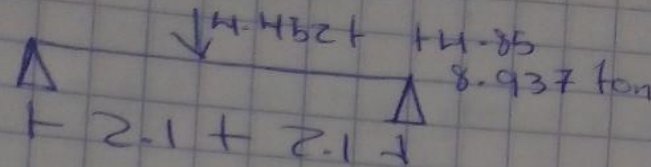
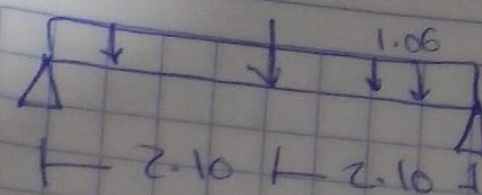
$$-17.0586 \text{ t} \cdot \text{m} - 3.15$$

$$= -20.2086 \text{ ton} \cdot \text{m} + R_B \cdot 4.05$$

$$R_B = 20.2086 \text{ ton} \cdot \text{m} / 4.05 \text{ m}$$

$$R_B = 4.98977 \text{ ton}$$

$$R_A = -8.424 \text{ ton} - 1.05 \text{ ton} + 4.989 = -4.485 \text{ ton}$$



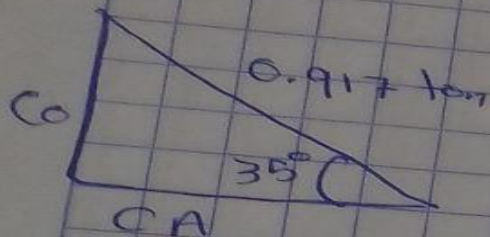
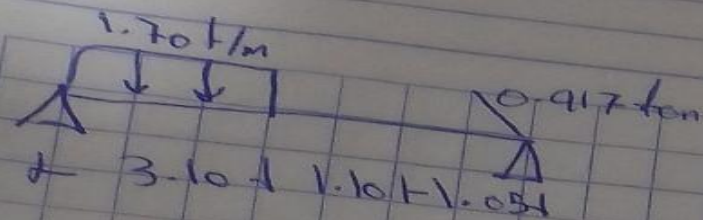
$$M_A = (-8.937 \cdot 2.1) + (R_B \cdot 4.2) =$$

$$-18.7677$$

$$= -18.7677 / 4.2$$

$$+ 4.4685$$

$$R_A = (-8.937 + 4.4685) = -4.4685 = 0$$

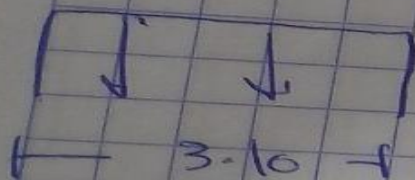


$$\sin \theta = \frac{Co}{H} = \sin \theta (H)$$

$$y = \sin 35^\circ (0.917) = 0.5259$$

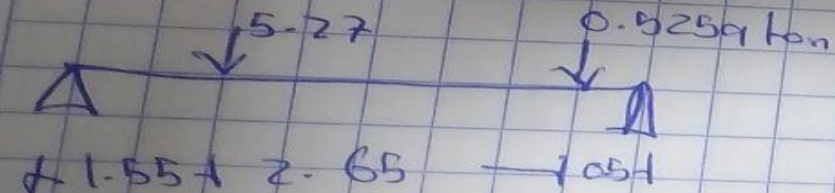
$$\cos \theta = \frac{CA}{H}$$

$$x = CA (\cos 35^\circ) (0.917) = 0.5259$$



$$w \cdot L = 1.7 \cdot 3.10 = 5.27 \text{ ton}$$

$$w_p = \frac{L}{2} = \frac{3.10}{2} = 1.55 \text{ ton}$$



$$M_A = (5.27 \cdot 1.55) + (0.5259 \cdot 4.2) + (RB \cdot 4.7)$$

$$8.1685 \text{ ton}\cdot\text{m} + 2.20878 \text{ ton}\cdot\text{m} + RB \cdot 4.7$$

$$RB = 10.37728 \text{ ton}\cdot\text{m} / 4.7 \text{ m}$$

$$RB = 2.2079 \text{ ton}$$

$$RA = -5.27 - 0.7802 + 2.2079 = -3.8423 \text{ ton}$$

$$RA = -5.27 - 0.7802 + 2.2079 + 3.8423 = 0 //$$