

Maquetas

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Nombre del tema:

ESTÁTICA

Parcial: 1°

Nombre de la Materia:

ESTÁTICA PARA LA ARQUITECTURA

Nombre del profesor:

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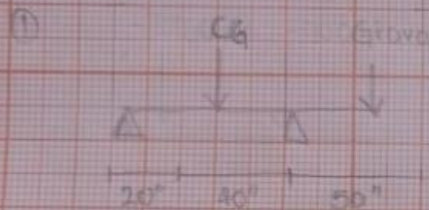
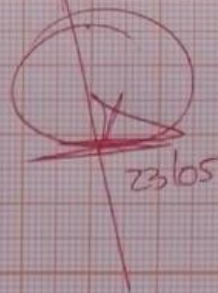
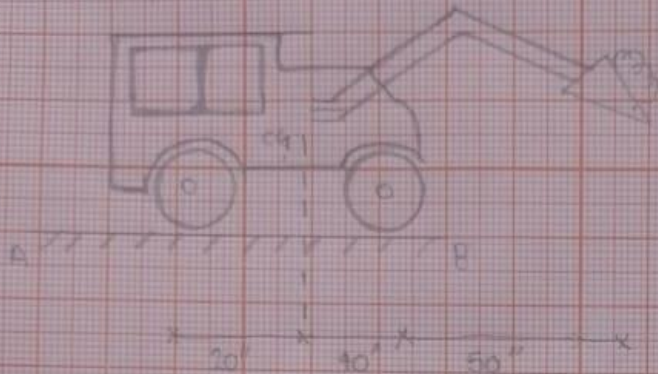
Nombre de la Licenciatura: Arquitectura

Cuatrimestre: 3°

Comitán de Domínguez, Chiapas a 24 de mayo de 2024

23 de mayo 2024

Un tractor de 2,100 Libras se utiliza para levantar 900 Libras de grava, determine la relación entre la llanta trasera A y llanta trasera B.



$$\begin{aligned} \textcircled{1} \quad \sum F_v &= 0 \\ R_A &= -2100 \text{ LB} - 900 \text{ LB} + R_B = 0 \\ R_A &= -3000 + R_B = 0 \\ R_A + R_B &= \underline{3000 \text{ LB}} \end{aligned}$$

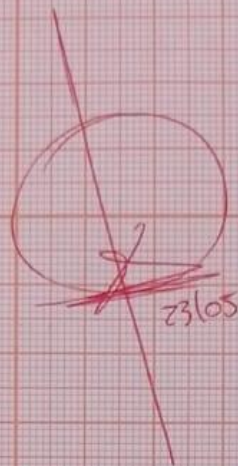
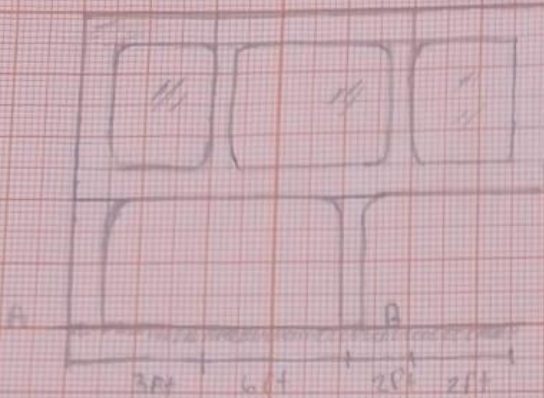
$$\begin{aligned} \textcircled{2} \quad \sum M &= 0 \\ (-2100 \cdot 20 \text{ m}) + (R_B \cdot 60 \text{ m}) + (-900 \cdot 110 \text{ m}) &= 0 \\ = (-42000) + (R_B \cdot 60) + (-99000) &= 0 \\ = (-141000) + R_B \cdot 60 & \\ R_B &= \frac{+141000 \text{ LB}}{60} = \frac{+2350 \text{ LB}}{2} = \underline{1175 \text{ LB}} \end{aligned}$$

$$\begin{aligned} \textcircled{1} \quad R_{Aa} \\ R_{Aa} + 2350 \text{ LB} &= 3000 \text{ LB} \\ R_{Aa} &= 3000 \text{ LB} - 2350 \text{ LB} \\ R_{Aa} &= \frac{650 \text{ LB}}{2} = \underline{325 \text{ LB}} \end{aligned}$$

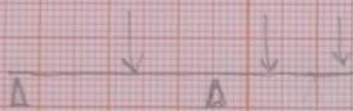
$$\begin{aligned} \textcircled{2} \quad \sum F_y \\ \sum F_y &= 650 \text{ LB} - 2100 \text{ LB} - 900 \text{ LB} + 2350 \text{ LB} \\ &= 650 \text{ LB} + 2350 = 3000 \\ 2100 + 900 &= 3000 \text{ LB} - 3000 \text{ LB} = 0 \\ \sum F_y &= 0 \end{aligned}$$

23 de Mayo 2024

-15 Kips -6 kips -6 kips



1



2) $\sum F_y = 0$

$$A_{oB} - 15 \text{ Kips} - 6 \text{ kips} - 6 \text{ kips} + A_{oB} = 0$$

$$A_{oB} = -27 \text{ Kips} + A_{oB} = 0$$

$$A_{oA} + A_{oB} = 27 \text{ Kips}$$

3) $\sum M = 0$

$$(-15 \text{ Kips} \cdot 3 \text{ ft}) + (A_{oB} \cdot 9 \text{ ft}) + (-6 \text{ kips} \cdot 11 \text{ ft}) + (-6 \text{ kips} \cdot 13 \text{ ft}) = 0$$

$$= (-45 \text{ Kips} \cdot \text{ft}) + (A_{oB} \cdot 9 \text{ ft}) + (-66 \text{ Kips} \cdot \text{ft}) + (-78 \text{ Kips} \cdot \text{ft}) = 0$$

$$= -189 \text{ Kips} \cdot \text{ft} + A_{oB} \cdot 9 \text{ ft}$$

$$A_{oB} = \frac{+189 \text{ Kips} \cdot \text{ft}}{9 \text{ ft}} = 21 \text{ Kips}$$

4) A_{oA}

$$A_{oA} + 21 \text{ Kips} = 27 \text{ Kips}$$

$$A_{oA} = 27 \text{ Kips} - 21 \text{ Kips}$$

$$A_{oA} = 6 \text{ Kips}$$

5) $\sum F_y$

$$\sum F_y = 6 \text{ Kips} - 15 \text{ Kips} - 6 \text{ kips} - 6 \text{ Kips} + 21 \text{ kips}$$

$$\sum F_y = -15 - 6 - 6 = -27$$

$$\sum F_y = 6 + 21 = 27 - 27 = 0$$

$$\sum F_y = 0$$