



NOMBRE DEL ALUMNO: ZULIBETH VÁZQUEZ NORIEGA.
NOMBRE DEL PROFESOR: PEDRO ALBERTO GARCÍA
NOMBRE DEL TRABAJO: EQUILIBRIO DE UN CUERPO RÍGIDO
MATERIA: ESTÁTICA PARA LA ARQUITECTURA
GRADO: 3°.
GRUPO: "A".
ARQUITECTURA

$\sum F_x = 0 \rightarrow Ax + Bx = 0$
 $\sum F_y = 0 \rightarrow Ay + By - (1000 \text{ kg} \cdot 2\text{m}) - (2000 \text{ kg} \cdot 4\text{m}) = 0$
 $\sum M_A = 0 \rightarrow (1000 \text{ kg} \cdot 2\text{m}) - (2000 \text{ kg} \cdot 4\text{m}) + B_y \cdot 6\text{m} = 0$
 $2000 \text{ kg} \cdot \text{m} - 8000 \text{ kg} \cdot \text{m} + 6B_y \cdot \text{m} = 0$
 $6B_y \cdot \text{m} = 6000 \text{ kg} \cdot \text{m}$
 $B_y = \frac{6000 \text{ kg} \cdot \text{m}}{6\text{m}} = 1000 \text{ kg}$

$\sum F_y = 0 \rightarrow Ay - 1000 \text{ kg} - 2000 \text{ kg} + 1000 \text{ kg} = 0$
 $Ay = 1000 \text{ kg}$
 $A_x = 200 \text{ kg}$

Comprobación
 $240 = 100 + 200 + 40 = 0$

$\sum F_x = 0 \rightarrow Ax + Bx = 0$
 $\sum F_y = 0 \rightarrow Ay + By - (2.7 \text{ Ton} \cdot 3\text{m}) - (2.0 \text{ Ton} \cdot 4\text{m}) = 0$
 $- 8.1 \text{ Ton} \cdot \text{m} - 8.0 \text{ Ton} \cdot \text{m} + B_y \cdot 6\text{m} = 0$
 $- 16.1 \text{ Ton} \cdot \text{m} + 6B_y \cdot \text{m} = 0$
 $B_y \cdot 6\text{m} = 16.1 \text{ Ton} \cdot \text{m}$
 $B_y = \frac{16.1 \text{ Ton} \cdot \text{m}}{6\text{m}} = 2.7 \text{ Ton}$

$\sum F_y = 0 \rightarrow Ay - 2.7 \text{ Ton} - 2.0 \text{ Ton} + 2.7 \text{ Ton} = 0$
 $Ay = 2.0 \text{ Ton}$
 $A_x = 2.0 \text{ Ton}$

Comprobación
 $2.0 \text{ Ton} - 2.7 \text{ Ton} - 2.0 \text{ Ton} + 2.7 \text{ Ton} = 0$

CARGA CONFORME TRIANGULAR-RECTANGULAR

$\sum F_x = 0 \rightarrow Ax + Bx = 0$
 $\sum F_y = 0 \rightarrow Ay + By - (1.5 \text{ Ton} \cdot 3\text{m}) - (1.5 \text{ Ton} \cdot 3\text{m}) = 0$
 $- 4.5 \text{ Ton} \cdot \text{m} - 4.5 \text{ Ton} \cdot \text{m} + B_y \cdot 6\text{m} = 0$
 $- 9.0 \text{ Ton} \cdot \text{m} + 6B_y \cdot \text{m} = 0$
 $6B_y \cdot \text{m} = 9.0 \text{ Ton} \cdot \text{m}$
 $B_y = \frac{9.0 \text{ Ton} \cdot \text{m}}{6\text{m}} = 1.5 \text{ Ton}$

$\sum F_y = 0 \rightarrow Ay - 1.5 \text{ Ton} - 1.5 \text{ Ton} + 1.5 \text{ Ton} = 0$
 $Ay = 1.5 \text{ Ton}$

Comprobación
 $1.5 \text{ Ton} - 1.5 \text{ Ton} - 1.5 \text{ Ton} + 1.5 \text{ Ton} = 0$

$\sum F_x = 0 \rightarrow Ax + Bx = 0$
 $\sum F_y = 0 \rightarrow Ay + By - (80 \text{ kg} \cdot 3\text{m}) - (100 \text{ kg} \cdot 4\text{m}) = 0$
 $- 240 \text{ kg} \cdot \text{m} - 400 \text{ kg} \cdot \text{m} + B_y \cdot 6\text{m} = 0$
 $- 640 \text{ kg} \cdot \text{m} + 6B_y \cdot \text{m} = 0$
 $6B_y \cdot \text{m} = 640 \text{ kg} \cdot \text{m}$
 $B_y = \frac{640 \text{ kg} \cdot \text{m}}{6\text{m}} = 106.67 \text{ kg}$

$\sum F_y = 0 \rightarrow Ay - 80 \text{ kg} - 100 \text{ kg} + 106.67 \text{ kg} = 0$
 $Ay = 173.33 \text{ kg}$

Comprobación
 $173.33 \text{ kg} - 80 \text{ kg} - 100 \text{ kg} + 106.67 \text{ kg} = 0$