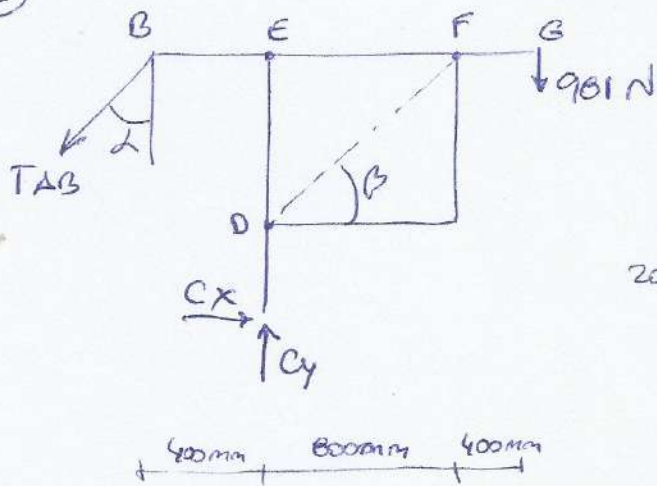


①



$$\alpha = \arctan \frac{400}{800} \Rightarrow \alpha = 26,56^\circ$$

$$\beta = 36,87^\circ$$

$$\sum M_C = 0 \quad -T_{AB} \cdot \cos 26,56^\circ \cdot 400 \text{ mm} - T_{AB} \cdot \sin 26,56^\circ \cdot 800 \text{ mm} + 981 \text{ N} \cdot 1200 \text{ mm} = 0$$

$$-T_{AB} \cdot (715,49 \text{ mm}) + 981 \text{ N} \cdot 1200 \text{ mm} = 0$$

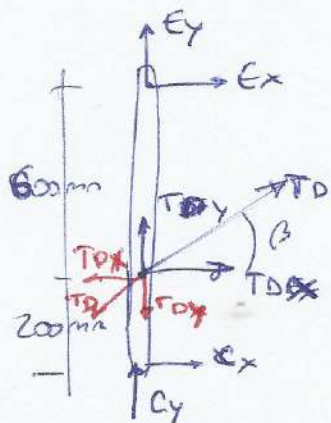
$$\boxed{T_{AB} = 1645,3 \text{ N}}$$

$$\sum F_x = 0 \quad -T_{AB} \cdot \sin \alpha + C_x = 0$$

$$\boxed{C_x = 736 \text{ N}}$$

$$\sum F_y = 0 \quad -T_{AB} \cdot \cos \alpha + C_y - 981 \text{ N} = 0$$

$$\boxed{C_y = -2453 \text{ N}}$$



$$\sum M_D = 0 \quad -C_x \cdot 800 \text{ mm} - T_{DX} \cdot 600 \text{ mm} = 0$$

$$\boxed{T_{DX} = -981,33 \text{ N}}$$

$$T_{DX} / \cos \beta = T_D \quad \rightarrow \boxed{T_D = 1227 \text{ N}}$$

$$T_{DY} = T_D \cdot \sin \beta \Rightarrow \boxed{T_{DY} = 736,2 \text{ N}}$$

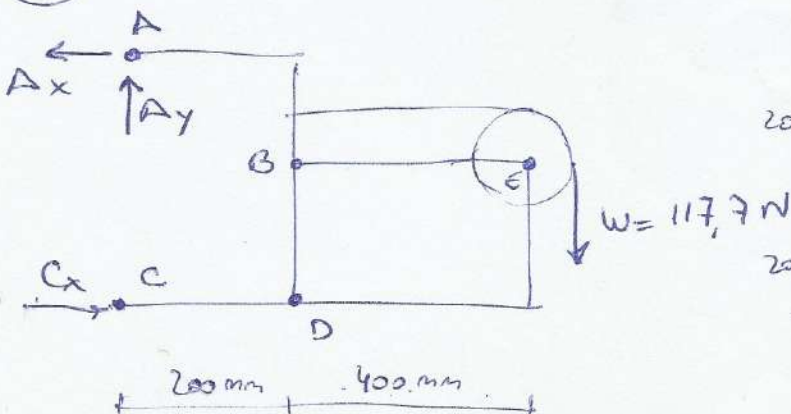
$$\sum F_x = 0 \quad 736 \text{ N} - 981,33 \text{ N} + E_x = 0$$

$$\boxed{E_x = 245,33 \text{ N}}$$

$$\sum F_y = 0 \quad 2453 \text{ N} - 736,2 \text{ N} + E_y = 0$$

$$\boxed{E_y = -1717 \text{ N}}$$

②



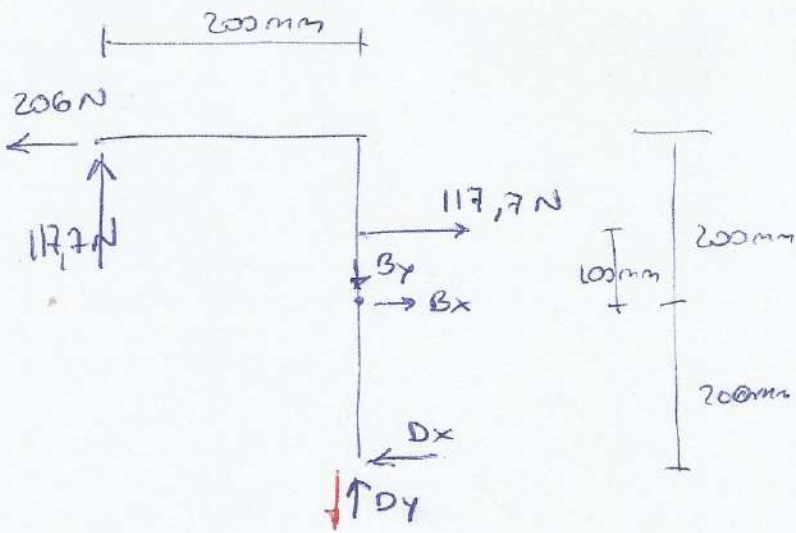
$$\sum M_C = 0$$

$$-A_x \cdot 0,4 \text{ m} + 117,7 \text{ N} \cdot 0,7 \text{ m} = 0$$

$$\boxed{A_x = 206 \text{ N}}$$

$$\sum F_x = 0 \quad \boxed{C_x = 206 \text{ N}}$$

$$\sum F_y = 0 \quad \boxed{A_y = 117,7 \text{ N}}$$



$$\sum M_B = 0$$

$$D_x \cdot 0,2 + 117,7 \text{ N} \cdot 0,2 - 206 \text{ N} \cdot 0,2 + 117,7 \text{ N} \cdot 0,1 = 0$$

$$\boxed{D_x = 29,45 \text{ N}}$$

$$\sum F_x = 0$$

$$-206 \text{ N} + 117,7 \text{ N} + B_x - 29,45 \text{ N} = 0$$

$$\boxed{B_x = 117,75 \text{ N}}$$

$$\sum F_y = 0$$

$$117,7 \text{ N} + D_y - B_y = 0$$

$$\sum M_D = 0 \quad E_x \cdot 200 \text{ mm} - E_y \cdot 400 \text{ mm} = 0$$

$$\sum F_x = 0 \quad 206 \text{ N} + 29,45 \text{ N} + E_x = 0$$

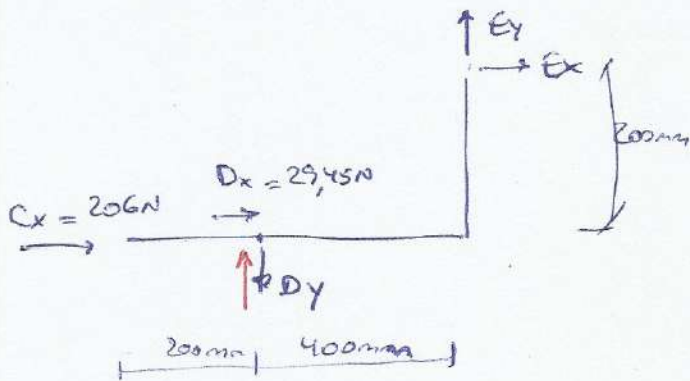
$$\boxed{E_x = -235,45 \text{ N}}$$

$$E_y = -235,45 \text{ N} \cdot \frac{200 \text{ mm}}{400 \text{ mm}}$$

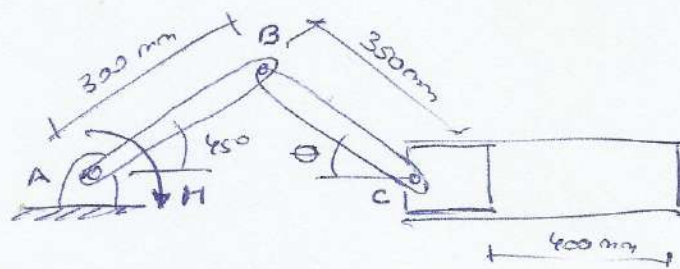
$$\boxed{E_y = -117,73 \text{ N}}$$

$$\sum F_y = 0 \quad E_y - D_y = 0$$

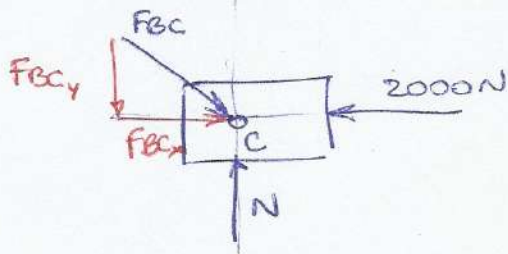
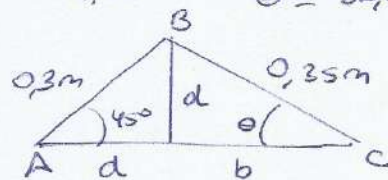
$$\boxed{D_y = -117,73 \text{ N}}$$



④ EJERCICIO EMBOLO



~~calculo~~ $d = 0,3 \cdot \cos 45^\circ = 0,21 \text{ m}$
 $\text{Sen } \theta = \frac{0,21}{0,35}$ $\theta = \arcsen 0,6$
 $\theta = 36,87^\circ$



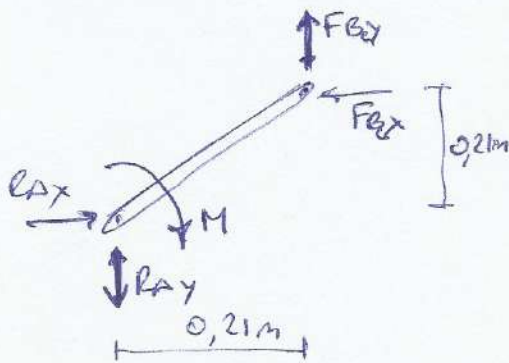
$$\sum F_x = 0 \quad F_{BC} \cdot \cos \theta - 2000 \text{ N} = 0$$

$$\sum F_y = 0 \quad N - F_{BC} \cdot \text{sen } \theta = 0$$

$$F_{BC} = \frac{2000 \text{ N}}{\cos 36,87} \Rightarrow \boxed{F_{BC} = 2500 \text{ N}}$$

$$\boxed{N = 2500 \text{ N} \cdot \text{sen } \theta = 1500 \text{ N}}$$

$$F_{BCx} = 2000 \text{ N} \quad F_{BCy} = 1500 \text{ N}$$



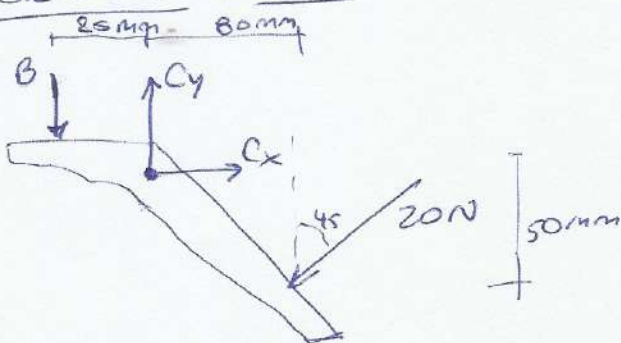
$$\sum M_A = 0 \rightarrow M - 1500 \text{ N} \cdot 0,21 \text{ m} - 2000 \text{ N} \cdot 0,21 \text{ m} = 0$$

$$\boxed{M = 735 \text{ N}\cdot\text{m}}$$

$$\boxed{R_{Ay} = 1500 \text{ N}}$$

$$\boxed{R_{Ax} = 2000 \text{ N}}$$

③ EJERCICIO PINZA



$$a) \sum M_C = 0 \quad -B \cdot 25 \text{ mm} + 20 \text{ N} \cdot \cos 45^\circ \cdot 50 \text{ mm} + 20 \text{ N} \cdot \text{sen } 45^\circ \cdot 80 \text{ mm} = 0$$

$$\boxed{B = 73,54 \text{ N}}$$

$$b) \sum F_x = 0 \quad C_x - 20 \text{ N} \cdot \cos 45^\circ = 0$$

$$\boxed{C_x = 14,14 \text{ N}}$$

$$\sum F_y = 0 \quad C_y - 73,54 \text{ N} - 20 \text{ N} \cdot \text{sen } 45^\circ = 0$$

$$\boxed{C_y = 87,68 \text{ N}}$$