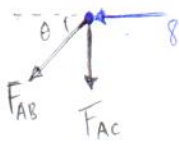
# EOPE - MCE - 3C - 2302

(V3)

**(1)** Analizando el nodo A: $\theta = \tan^{-1}\left(\frac{4.5}{2.8}\right) = 58.1°$




$\pm\rightarrow \sum F_x = 0$; $-F_{AB}\cos\theta - 8.4 = 0$

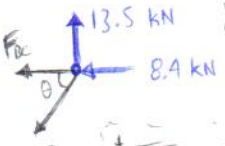
$F_{AB} = \frac{-8.4}{\cos\theta} = -15.9$ kN

$+\uparrow \sum F_y = 0$; $-F_{AC} - F_{AB}\operatorname{sen}\theta = 0$

$\therefore F_{AC} = -F_{AB}\operatorname{sen}\theta = -(-15.9)\operatorname{sen}\theta = 13.5$ kN

$F_{AB} = 15.9$ kN (C) | $F_{AC} = 13.5$ kN (T)

- Analizando el nodo C:




$+\uparrow \sum F_y = 0$; $13.5 - F_{CD}\operatorname{sen}\theta = 0$

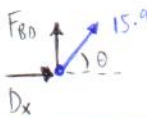
$\therefore F_{CD} = \frac{13.5}{\operatorname{sen}\theta} = 15.9$ kN

$\pm\rightarrow \sum F_x = 0$; $-F_{BC} - 8.4 - F_{CD}\cos\theta = 0$

$\therefore F_{BC} = -8.4 - F_{CD}\cos\theta = -16.8$ kN

$F_{CD} = 15.9$ kN (T) | $F_{BC} = 16.8$ kN (C)

- Analizando el nodo D:

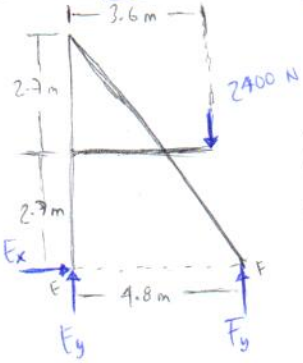



$+\uparrow \sum F_y = 0$; $F_{BD} + 15.9\operatorname{sen}\theta = 0 \rightarrow F_{BD} = -15.9\operatorname{sen}\theta = -13.5$ kN

$\therefore F_{BD} = 13.5$ kN (C)

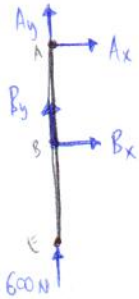
$+\circlearrowleft \sum M_E = 0$; $-2400(3.6) + F_y(4.8) = 0 \rightarrow F_y = \frac{2400(3.6)}{4.8} = 1800$ N

**(2)** - Analizando el bastidor completo: $\pm\rightarrow \sum F_x = 0$; $E_x = 0$




$+\uparrow \sum F_y = 0$; $E_y + F_y - 2400 = 0 \rightarrow E_y = 2400 - F_y = 600$ N

- Analizando el elemento ABE:

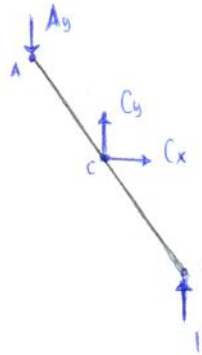



$+\circlearrowleft \sum M_A = 0$; $B_x(2.7) = 0 \rightarrow B_x = 0$

$\pm\rightarrow \sum F_x = 0$; $A_x + B_x = 0 \rightarrow A_x = 0$

$+\uparrow \sum F_y = 0$; $A_y + B_y + 600 = 0$ ... (i)

- Analizando ACF:



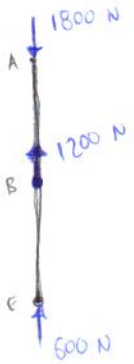

$+\circlearrowleft \sum M_C = 0$; $A_y(2.4) + 1800(2.4) = 0 \rightarrow A_y = \frac{-1800(2.4)}{2.4} = -1800$ N

$\pm\rightarrow \sum F_x = 0$; $C_x = 0$

$+\uparrow \sum F_y = 0$; $-A_y + C_y + 1800 = 0 \rightarrow C_y = -1800 + A_y = -3600$ N

De (i) $\rightarrow$ $B_y = -600 - A_y = -600 - (-1800) = 1200$ N

- Fuerzas actuando sobre ABE




- Fuerzas actuando sobre ACF