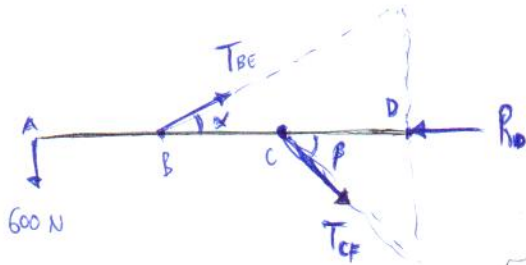


Q02 - MCR - 2302 (3A & 3B) \int • Calculando α y β

$$\alpha = \tan^{-1}\left(\frac{80}{200}\right) = 21.8^\circ / \quad \beta = \tan^{-1}\left(\frac{90}{100}\right) = 38.66^\circ$$



• Ecuaciones de equilibrio:

$$+\circlearrowleft \sum M_B = 0 \rightarrow 600(100) - T_{CF} \sin \beta (100) = 0$$

$$\therefore T_{CF} = 960 \text{ N}$$

$$\therefore T_{CF} = \cancel{960.46 \text{ N}} \quad 960.46 \text{ N}$$

$$+\uparrow \sum F_y = 0 \rightarrow -600 + T_{BE} \sin \alpha - T_{CF} \sin \beta = 0 \rightarrow T_{BE} = \frac{600 + T_{CF} \sin \beta}{\sin \alpha} = \cancel{3231 \text{ N}}$$

$$\therefore \cancel{T_{BE}} \quad \therefore T_{BE} = 3231 \text{ N} = 3.23 \text{ kN}$$

$$+\rightarrow \sum F_x = 0 \rightarrow T_{BE} \cos \alpha + T_{CF} \cos \beta - R_D = 0 \rightarrow R_D = T_{BE} \cos \alpha + T_{CF} \cos \beta = \cancel{3750 \text{ N}}$$

$$\therefore R_D = 3750 \text{ N} \approx 3.75 \text{ kN}$$

Q02 - MCR - 3C

• Calculando θ $\rightarrow \theta = \tan^{-1}\left(\frac{0.18}{0.24}\right) = 36.87^\circ$
• Ecs. de equilibrio:

$$+\circlearrowleft \sum M_C = 0 \rightarrow -240(0.4) - 240(0.8) + F_{BA} \cos \theta (0.18) = 0$$

$$\therefore F_{BA} = 2000 \text{ N} = 2 \text{ kN}$$

$$+\rightarrow \sum F_x = 0 \rightarrow -F_{BA} \cos \theta + C_x = 0$$

$$\therefore C_x = 1600 \text{ N} = 1.6 \text{ kN}$$

$$+\uparrow \sum F_y = 0 \rightarrow C_y - F_{BA} \sin \theta - 240 - 240 = 0$$

$$\therefore C_y = 1680 \text{ N} = 1.68 \text{ kN}$$

