



$$\begin{aligned}\vec{T}_{BC} &= T_{BC} \langle 0, 3, 4 \rangle - \langle 12, 0, 0 \rangle \\ &= T_{BC} \frac{\langle -12, 3, 4 \rangle}{13}\end{aligned}$$

$$\begin{aligned}\vec{T}_{BD} &= T_{BD} \langle 0, 4, -6 \rangle - \langle 12, 0, 0 \rangle \\ &= T_{BD} \frac{\langle -12, 4, -6 \rangle}{14}\end{aligned}$$

$$\begin{aligned}\sum F_z &= \frac{4}{13} T_{BC} - \frac{6}{14} T_{BD} = 0 & \frac{4}{13} T_{BC} &= \frac{3}{7} T_{BD} \\ T_{BD} &= \frac{28}{39} T_{BC}\end{aligned}$$

$$\sum F_y = \frac{3}{13} T_{BC} + \frac{2}{7} \left(\frac{28}{39} T_{BC} \right) + A_y - 850 = 0$$

$$\sum F_x = \frac{-12}{13} T_{BC} - \frac{6}{7} \left(\frac{28}{39} T_{BC} \right) + A_x = 0$$

$$\begin{aligned}\sum M_A = 0 & \quad -850(6) + \underbrace{\frac{3}{13} T_{BC}(12) + \frac{4}{14} \left(\frac{28}{39} T_{BC} \right)(12)}_{T_y \text{ of cables}} + \underbrace{\frac{4}{13} T_{BC}(12) - \frac{6}{14} \left(\frac{28}{39} T_{BC} \right)(12)}_{T_z \text{ of cables}} = 0\end{aligned}$$