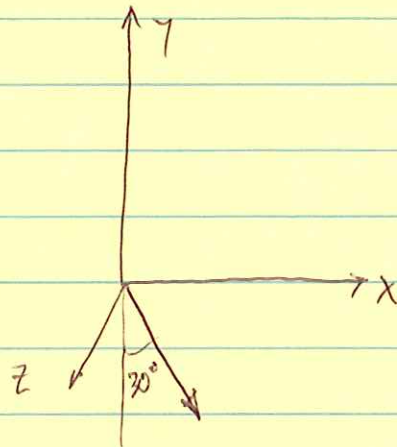
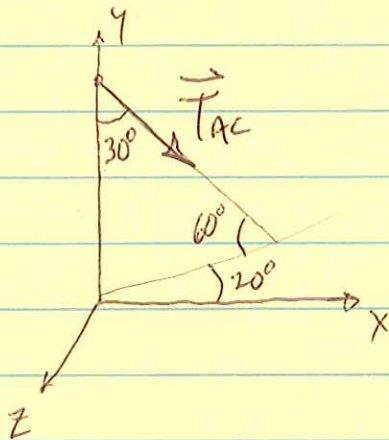


PROB. 2.73

$T_{AC} = 120 \text{ lb}$, FIND \vec{T}_{AC} , DIRECTION ANGLES



$$\theta_y = 180 - 30 = \underline{150^\circ}, \quad \phi = 360 - 20^\circ = \underline{340^\circ}$$

$$F_y = \cancel{120} F \cdot \cos \theta_y = 120 \cdot \cos 150^\circ = \underline{-104 \text{ lb}}$$

$$F_x = F \cdot \sin \theta_y \cdot \cos \phi = 120 \cdot \sin 150^\circ \cdot \cos 340^\circ = \underline{56.4 \text{ lb}}$$

$$F_z = F \cdot \sin \theta_y \cdot \sin \phi = 120 \cdot \sin 150^\circ \cdot \sin 340^\circ = \underline{-20.5 \text{ lb}}$$

$$\theta_x = \cos^{-1}\left(\frac{F_x}{F}\right) = \cos^{-1}\left(\frac{56.4}{120}\right) = \underline{62.0^\circ}$$

$$\theta_z = \cos^{-1}\left(\frac{F_z}{F}\right) = \cos^{-1}\left(\frac{-20.5}{120}\right) = \underline{99.8^\circ}$$