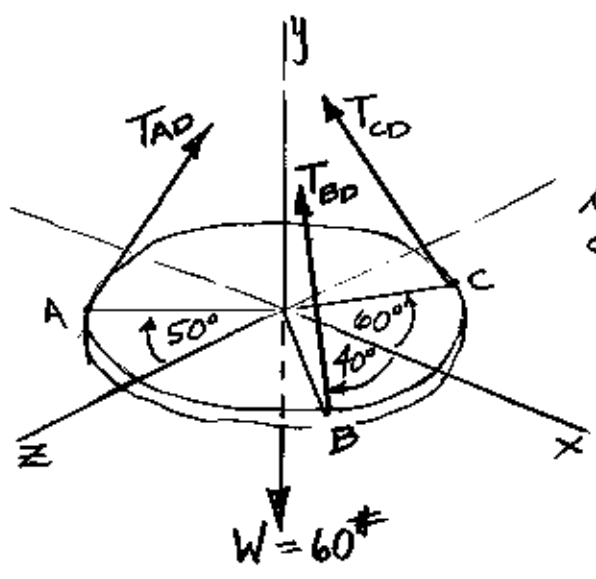
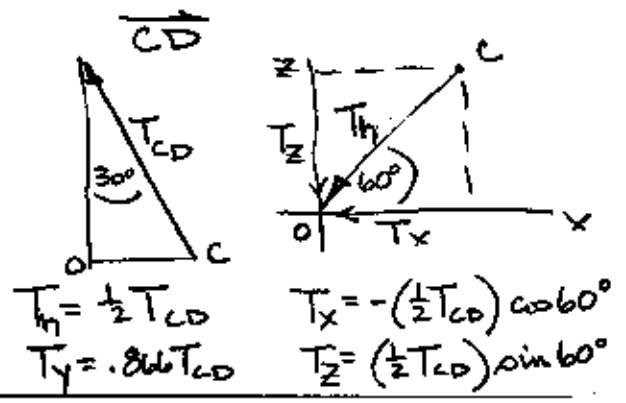
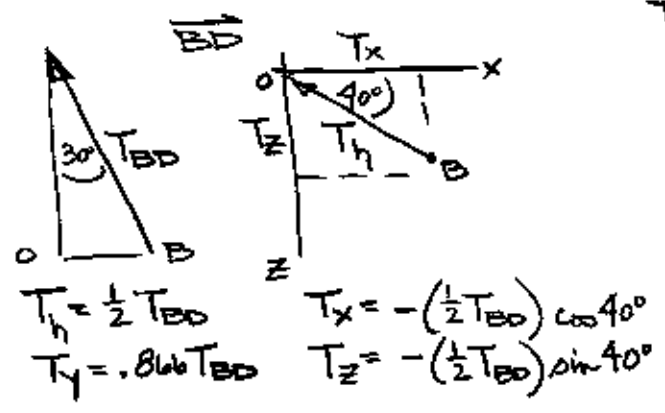
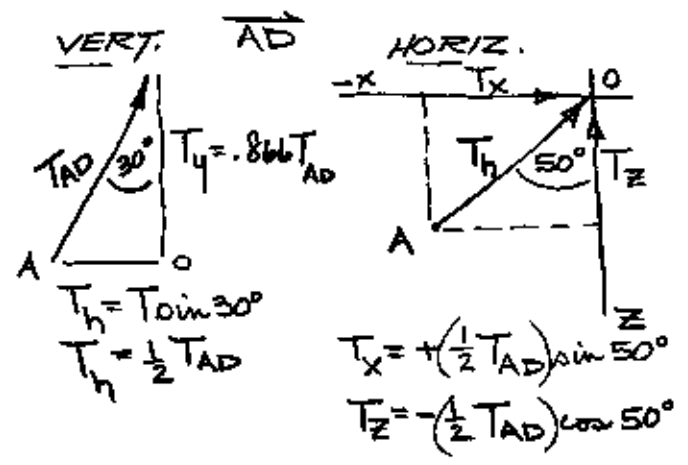


G. MILANO



EQUIL. $\Sigma \vec{F} = 0$

NEED COMPONENTS OF ALL CABLE TENSIONS.



GROUP LIKE TERMS: $\Sigma F_x = 0, \Sigma F_y = 0, \Sigma F_z = 0$

$$\Sigma F_x = 0 = \frac{1}{2} T_{AD} \sin 50^\circ - \frac{1}{2} T_{BD} \cos 40^\circ - \frac{1}{2} T_{CD} \cos 60^\circ = .766 T_{AD} - .766 T_{BD} - .5 T_{CD} \quad (1)$$

$$\Sigma F_y = 0 = .866 T_{AD} + .866 T_{BD} + .866 T_{CD} - 60 \# \div .866$$

$$T_{AD} + T_{BD} + T_{CD} = 69.284 \quad (2)$$

$$\Sigma F_z = 0 = -\frac{1}{2} T_{AD} \cos 50^\circ - \frac{1}{2} T_{BD} \sin 40^\circ + \frac{1}{2} T_{CD} \sin 60^\circ = -.643 T_{AD} - .643 T_{BD} + .866 T_{CD}$$

$$\therefore (3) \quad T_{CD} = \frac{.643}{.866} [T_{AD} + T_{BD}] = .742 [T_{AD} + T_{BD}] = T_{CD} \quad \text{BACK SUB. INTO (1) + (2)}$$

$$\text{SUB. INTO (1)} \quad .766 [T_{AD} - T_{BD}] - .5 [.742 (T_{AD} + T_{BD})] = 0$$

$$.395 T_{AD} - 1.137 T_{BD} = 0 \quad \therefore T_{AD} = 2.878 T_{BD} \quad \text{SUB. INTO (2)}$$

$$(2) \quad (2.878 T_{BD}) + T_{BD} + (.742 [2.878 T_{BD}] + .742 T_{BD}) = 69.284$$

$$6.755 T_{BD} = 69.284$$

$$T_{BD} = 10.256 \# \quad \therefore T_{AD} = 29.517 \# \quad \therefore T_{CD} = 29.511 \#$$