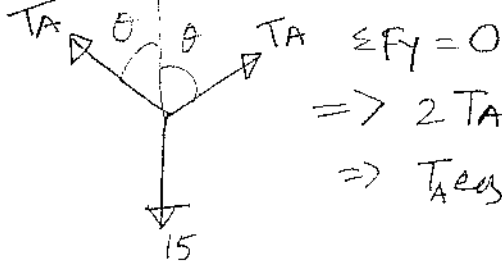
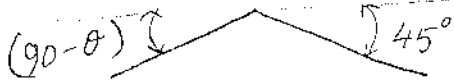


3-28



$$\Rightarrow 2T_A \cos \theta = 15$$

$$\Rightarrow T_A \cos \theta = 7.5 \dots \textcircled{1}$$



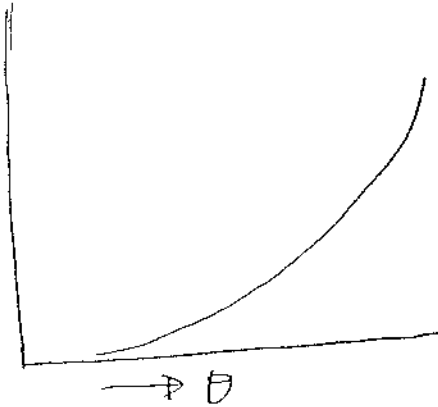
$$\sum F_x = 0$$

$$\Rightarrow T_A \cos(90 - \theta) = F \cos 45$$

$$\Rightarrow T_A \sin \theta = F \cos 45 \dots \textcircled{2}$$

$$\textcircled{2} \div \textcircled{1} \Rightarrow \tan \theta = \frac{F \cos 45}{7.5}$$

$$\Rightarrow \boxed{\tan \theta = 0.094 F}$$



Graph F vs θ

3-42

$$\sum F_x = 0$$

$$\Rightarrow F_1 \cos 60 + 150 \cos 45 \cos 30 - 225 = 0$$

$$\therefore F_1 = \underline{266.3 \text{ lb}}$$

$$\sum F_y = 0$$

$$-F_3 - 150 \cos 45 \sin 30 + F_1 \cos 60 = 0$$

$$\Rightarrow F_3 = \underline{80.15 \text{ lb}}$$

$$\sum F_z = 0$$

$$\Rightarrow F_2 + 150 \cos 45 + F_1 \cos 135 = 0$$

$$\Rightarrow F_2 = \underline{82.2}$$

