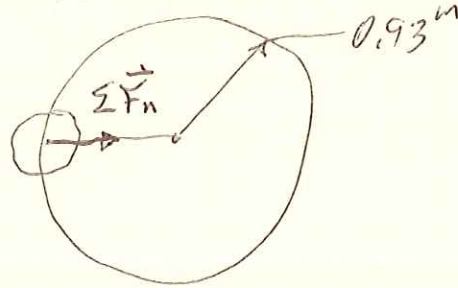
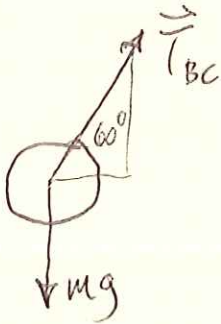


PROB. 12-36

$$m = 7.1 \text{ kg}, \quad v = \text{CONSTANT}, \quad \rho = 0.93 \text{ m}, \quad \theta = 60^\circ$$

FIND  $T_{BC}$ ,  $v$



$$\sum F_n = ma_n = m \frac{v^2}{\rho}$$

$$\sum F_y = ma_y$$

$$T \sin 60^\circ - mg = 0$$

$$T = \frac{mg}{\sin \theta} = \frac{(7.1 \text{ kg})(9.81 \frac{\text{m}}{\text{s}^2})}{\sin 60^\circ} = 80.43 \text{ N}$$

$$v = \sqrt{\frac{\rho T \cos 60^\circ}{m}}$$

$$v = \sqrt{\frac{(0.93 \text{ m})(80.43 \text{ N}) \cos 60^\circ}{(7.1 \text{ kg})}} \cdot \left( \frac{\text{kg} \cdot \text{m}}{\text{N} \cdot \text{s}^2} \right) = 2.295 \frac{\text{m}}{\text{s}}$$