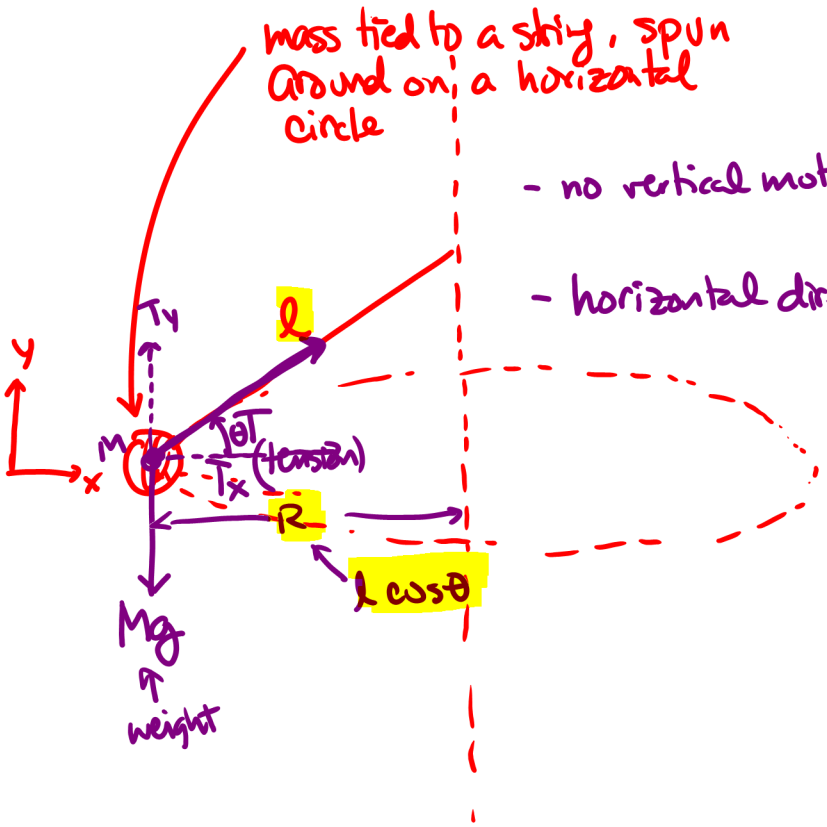

- no vertical motion → $T_y = Mg$

$T\sin\theta = Mg$ → $T = \frac{Mg}{\sin\theta}$

- horizontal direction $T_x = F_c = Ma_c$

$T\cos\theta = F_c$

$\frac{Mg}{\sin\theta}\cos\theta = F_c$

$\frac{Mg\cos\theta}{\sin\theta} = F_c = \frac{Mv^2}{R}$

$\frac{Mg\cos\theta}{\sin\theta} = \frac{Mv^2}{l\cos\theta}$