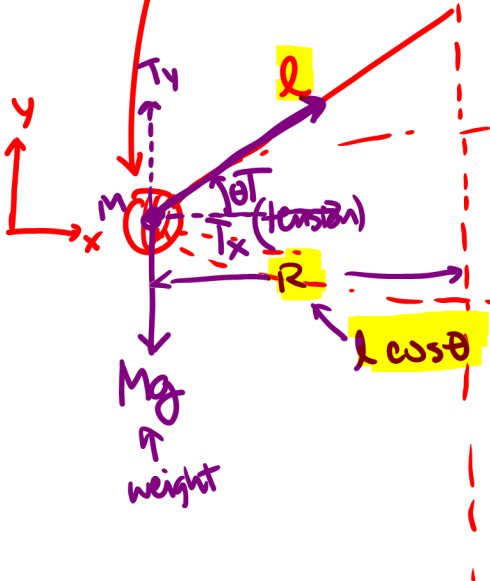


mass tied to a string, spun  
around on a horizontal  
circle



- no vertical motion  $\rightarrow$

$$T_y = Mg$$

$$T \sin \theta = Mg$$

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

- horizontal direction

$$T_x = F_c = Mac$$

$$T \cos \theta = F_c$$

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

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

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