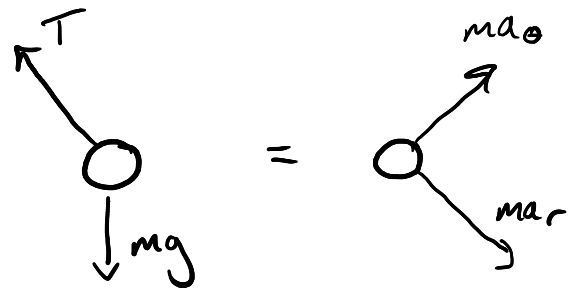
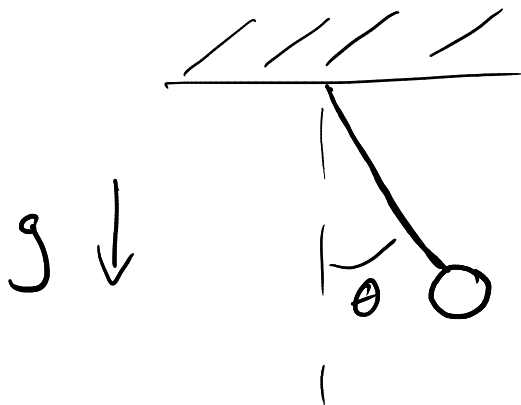


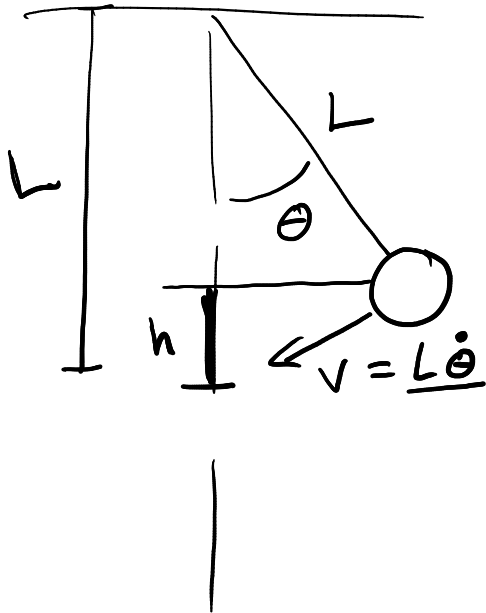
Tension in cord



$$\begin{aligned} \hat{e}_r \quad (1) \quad mg \cos \theta - T &= -m r \dot{\theta}^2 \\ \hat{e}_\theta \quad (2) \quad \ddot{\theta} &= -\frac{g}{r} \sin \theta \end{aligned}$$

$$T = \underline{m r \dot{\theta}^2 + m g \cos \theta}$$

$$T_{\max} \Rightarrow \text{when } \theta = 0$$



$$T = \frac{1}{2}mv^2 = \frac{1}{2}mL^2\dot{\theta}^2$$

$$V = mgh$$

$$h = L - L\cos\theta$$

$$T + V = \int W dt$$

$$\frac{1}{2}mL^2\dot{\theta}^2 + mgL(1 - \cos\theta) = \text{constant}$$