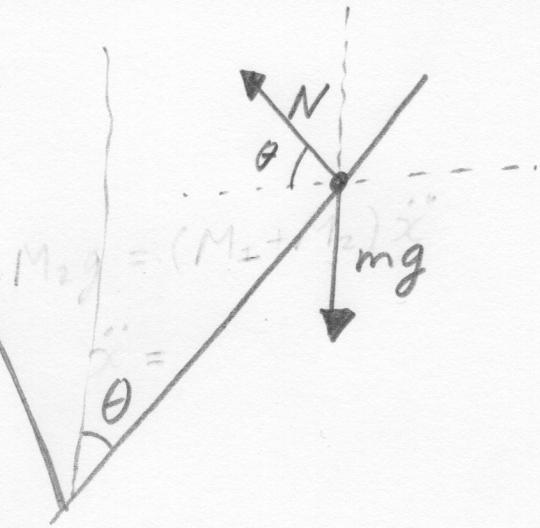


2.6.



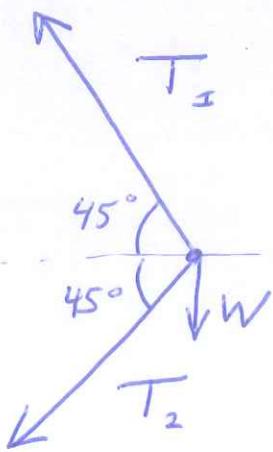
$$N \sin \theta = mg$$

$$N \cos \theta = \frac{V_0^2}{r} m$$

$$\Rightarrow r = \frac{V_0^2 m}{N \cos \theta}$$

$$= \frac{V_0^2 m}{\frac{mg}{\sin \theta} \cos \theta} = \frac{V_0^2}{g} \tan \theta$$

3.5



Eq. of motion for vertical direction:

$$\frac{1}{\sqrt{2}}(T_1 - T_2) - W = 0$$

Eq. of motion for horizontal direction:

$$-\frac{1}{\sqrt{2}}(T_1 + T_2) = -r\omega^2 m \quad r = \frac{1}{\sqrt{2}} l$$

$$\Rightarrow T_1 + T_2 = m\omega^2 l$$

$$\Rightarrow T_1 = \frac{1}{2}\sqrt{2}W + \frac{1}{2}m\omega^2 l$$

$$T_2 = \frac{1}{2}m\omega^2 l - \frac{1}{2}\sqrt{2}W$$