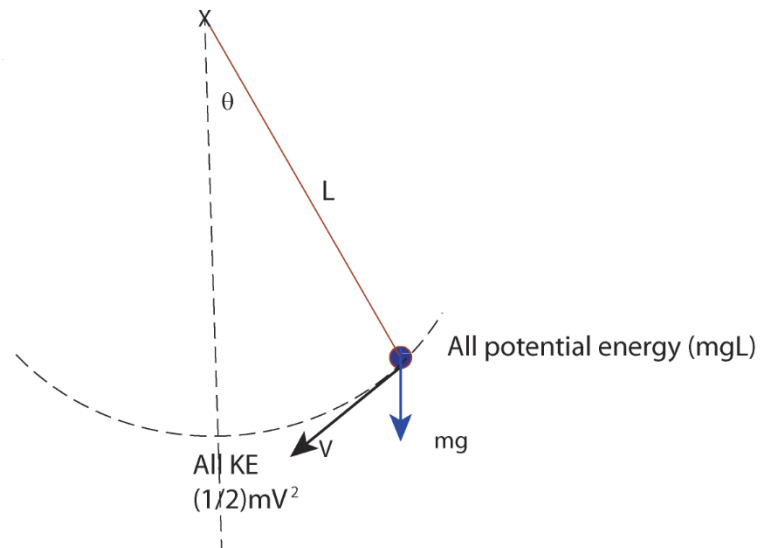


Pendulum

For small θ ,
oscillatory motion

$$\theta = \theta_{max} \sin \sqrt{\frac{g}{L}} t$$

$$\text{Period } T = 2\pi \sqrt{\frac{L}{g}}$$



Can serve as a clock for fixed g and fixed L

Example

Grandfather clock $L = 2\text{m}$, $g = 9.8\text{m/s}^2$

$T = 2.84\text{ s}$.

Homework:

A pendulum clock that has a period of 0.5 sec on Earth is moved to a small satellite where $g = g(\text{Earth})/9$. What is the new period of the clock?

OR

Write a short essay (1 page maximum) on how pendulum clocks are used around the world (Big Ben and all that)