

ASG v 2 Ex 4.3 (Lunar pendulum)

For small amplitude oscillations (I know, Galileo said for all oscillations no matter how big) the period is given by

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

Near earth's surface,  $g = 981 \text{ cm/s}^2$ . So to get  $T = 1$  we need

$$L = \frac{T^2}{(2\pi)^2} g = 25 \text{ cm}$$

Near the moon's surface, where  $g = 163 \text{ cm/s}^2$ ,

$$L = 4 \text{ cm}$$