

Directions: Please show all work for full credit.

1. A man enters a tall tower, needing to know its height. He notes that a long pendulum extends from the ceiling almost to the floor and that its period is 15.5s.

_____ how tall is the tower?

2. If the above pendulum is taken to the moon, where the value due to gravity is 1.63m/s/s , what is its period there?

_____ s

3. A simple 2m long pendulum oscillates at a location where $g=9.8\text{m/s/s}$. How many complete oscillations does it make in 5 minutes.

_____ cycles

4. a pendulum is 5m long. What is the period of this pendulum if it is in an elevator accelerating upwards at 5m/s/s .

_____ upwards

_____ downwards at 5m/s/s .

5. The gravitational pull on Mars is 3.7m/s/s . What length of pendulum would give you a period of 1 second?

_____ m

How would this compare to a 1s pendulum of earth?

Longer or shorter