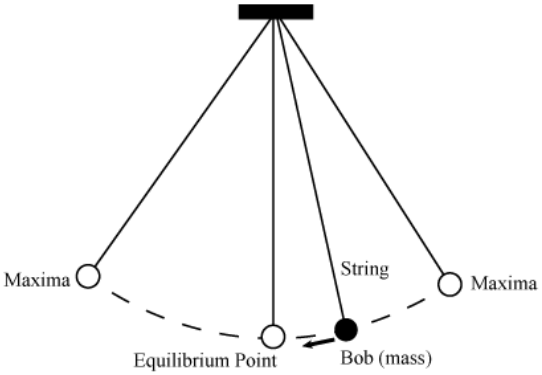
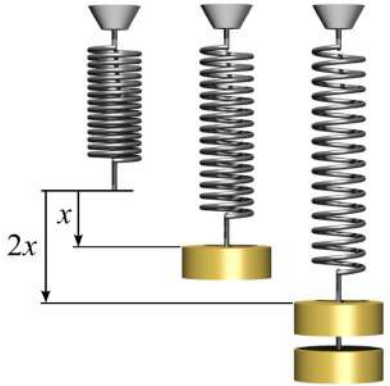
Physics Honors:
Simple Harmonic Motion

Simple Harmonic Motion

Simple Harmonic Motion occurs in any system which the force acting to restore an object to its equilibrium position is directly proportional to the displacement an object shows



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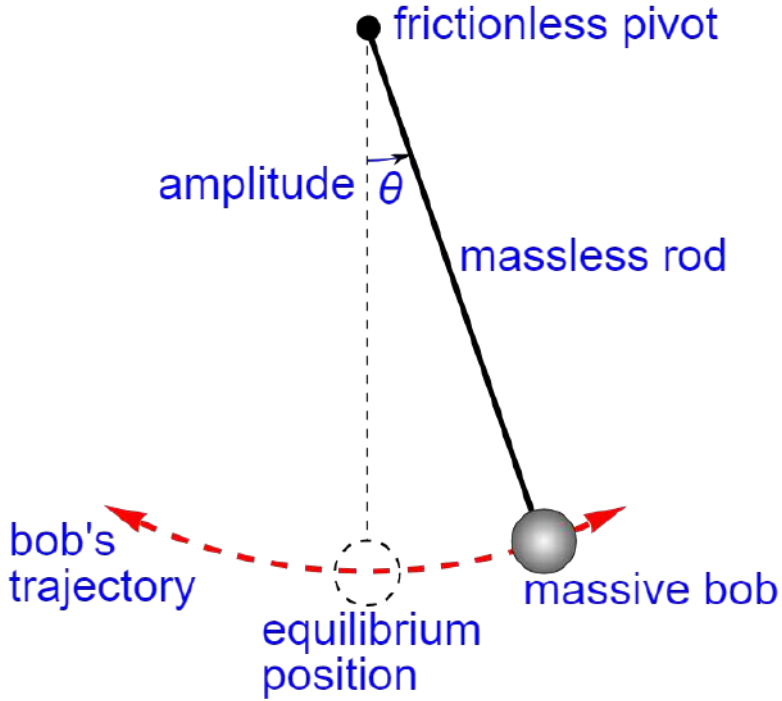
Pendulums

A simple pendulum consists of a massive object, called a bob, suspended by a string or light rod.

The string exerts a tension force upward, while gravity provides a downward force.



Period of a Pendulum Equation

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

T = Period (seconds)

L = Length of the string (meters)

g = Gravitational field (little g) (meters per second squared)

Period of a Pendulum Practice

If a pendulum on Earth has a length of 5m, what is the period in seconds?

If we took this same pendulum to another planet, and the new period was 8 seconds, what is the gravity on this planet?

Period of a Pendulum Practice

A pendulum with a length of 36.9cm has a period of 1.22 seconds, what is the gravitational field at the pendulum’s location?

What is the time difference between a pendulum that is 2m long on Earth (g=10m/s^2) and Mars (g=3.5m/s^2) ?