

Name: _____

Class Period: _____

Physics: SHM

Hooke's Law and Energy of a Spring Homework

Conceptual Questions:

1. What characterizes simple harmonic motion (SHM)? Give two real-life examples of SHM.

2. How are the period (T) and frequency (f) of SHM related to each other – direct relationship, indirect relationship, exponential relationship, no relationship?

Mathematical Questions:

3. A boy is bouncing on a po-go stick and finds that it takes a mass of 9.08 kg to get the rather stiff spring to compress 0.191 m.
 - A. What is the spring constant for this spring?
 - B. How much force does it take for the spring to compress 0.508 m?

4. In a pinball game, a metal ball is shot into the game by a compressed pinball plunger. If the spring in the plunger has a spring constant of 220.0 N/m and is compressed 8.00 **cm** from its resting position, what is the magnitude of the force from the spring the moment the plunger is released?

5. A pendulum is observed to make exactly 10 complete back and forth cycles of motion in 21.8 seconds. What the period of the pendulum?

***See back for last question**

Motion of a Spring:

Create the position and velocity graphs for the spring shown below. Assume that the downward direction is negative and upward direction is positive.

