

Name _____

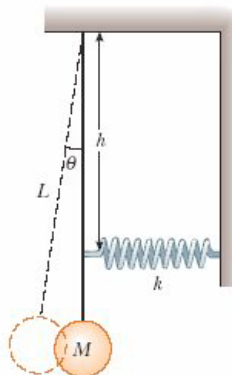
PH 125 Quiz: Mostly Oscillations

1. Two pulses move in opposite directions on a string and are identical in shape except that one has positive displacements of the elements of the string and the other has negative displacements. At the moment that the two pulses completely overlap on the string,

- the energy associated with the pulses has disappeared
- the string is not moving
- the string forms a straight line
- the pulses have vanished and will not reappear.

2. A pendulum of length L and mass M has a spring of force constant k connected to it at a distance h below its point of suspension (see below). Which is the frequency of vibration f ?

- $(2\pi L)^{-1}\sqrt{gM + kh/M}$
- $(2\pi L)^{-1}\sqrt{gL + kh^2/M}$
- $(2\pi L)^{-1}\sqrt{2gL + h/kM}$
- $(2\pi L)^{-1}\sqrt{g/L + k/M}$



3. Can the amplitude A and the phase constant φ be determined for an oscillator if only the position is specified at $t = 0$?

- Yes.
- No. It is necessary to know the both position and velocity at $t = 0$
- No. It is enough to know the *velocity* only, but not the position only.

4. A block-spring system undergoes simple harmonic motion with amplitude A . Does the total energy change if the mass is doubled, but the amplitude is not changed? If so, by how much?

- Total energy does not change.
- Total energy doubles.
- Total energy is four times greater.
- We would have to know k for the spring.