

Name _____

PH 125 Quiz: Mostly Oscillations

1. 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.

2. 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.

3. A grandfather clock depends on the period of a pendulum to keep correct time. Suppose a grandfather clock is calibrated correctly, and then a mischievous child slides the bob of the pendulum downward on the oscillating rod. Does the grandfather clock run:

- slow
- fast
- correctly?

4. Suppose a grandfather clock is calibrated correctly at sea level, and is then taken to the top of a very tall mountain. Does the grandfather clock run:

- slow
- fast
- correctly?

5. A block on the end of a spring is pulled to a position $x = A$ and released. In one full cycle of its motion, through what total distance does it travel?

- $A/2$
- A
- $2A$
- $4A$