

A mass of 0.50 kg connected to a light spring of force constant 24 N/m oscillates on a horizontal frictionless surface with an amplitude of 4.0 cm. What is the speed of the mass when the displacement is equal to 2.0 cm ?

- A. 72 cm/s
- B. 12 cm/s
- C. 36 cm/s
- D. 24 cm/s
- E. 48 cm/s

A small mass on the end of an ideal spring is pulled vertically downward from its equilibrium position a distance of 5.0 cm and released from rest. The mass then oscillates in SHM with a period of 8.0 s. Find the maximum speed of the mass.

- A. 2.0 cm/s
- B. 10.0 cm/s
- C. 4.5 cm/s
- D. 2.8 cm/s
- E. 3.9 cm/s

Consider an ideal mass-spring system executing a simple harmonic motion along the x-axis. Which of the following statements is CORRECT in this case?

- A. The potential energy is maximum at the equilibrium position.
- B. The period of oscillation is independent of the mass.
- C. The kinetic energy is maximum at the position of maximum displacement from the equilibrium.
- D. The acceleration of the system is a constant of motion.
- E. The total energy of the system is a constant of motion.