## **AP** Physics 1 Review Questions

## Integrating Content, Inquiry and Reasoning

- 1. Which of the following properties, amplitude, frequency, and wavelength, affect the wave speed of the stretched spring?
- 2. A longitudinal wave is propagated through a medium. The distance from one maximum compression to the next is x meters and its speed is y m/s. Express the frequency of the waves in terms of x and y.
- 3. A wave is propagated through a spring. A point on the spring moves perpendicular to the motion of the wave a total of 32 cm during one complete wave cycle. What is the amplitude of the wave?
- 4. A standing wave is created in a vibrating string in which the length, L, is 1.5 meters long. The string is fixed at each end and displays three antinodes.
  - *a*. Determine the wavelength of the standing wave.
  - b. The period of the vibrating string is 0.004 seconds. What is the frequency of the standing wave?
  - c. What is the speed of the propagated transverse waves?
  - d. At what frequency would the same string need to vibrate in order to establish one antinode?
  - *e.* The motor creating the vibrations in the string can reach a maximum frequency of 300 Hz. Can a standing wave with four antinodes be created with the string as it is using this motor? Explain.
- 5. Explain how a guitar player can produce so many different notes with only six strings.

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