PreAP: Due: Wed., Mar 8 (Assigned: Mon., Mar 6)

Harmonic Review 4 – Honors Only

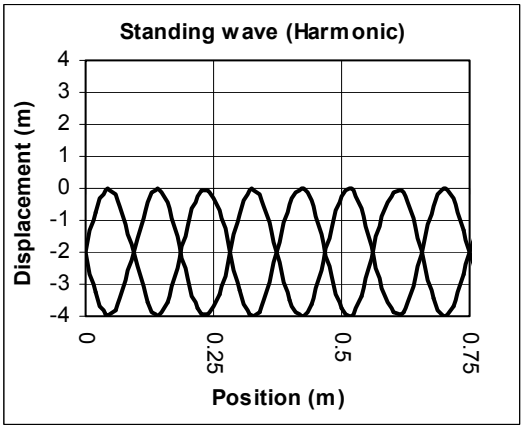
1. Use the standing wave at the right to answer the following.
   A. Find the standing wave's wavelength.

   B. If this was a sound wave, find its frequency.

   C. Can we hear it's frequency?

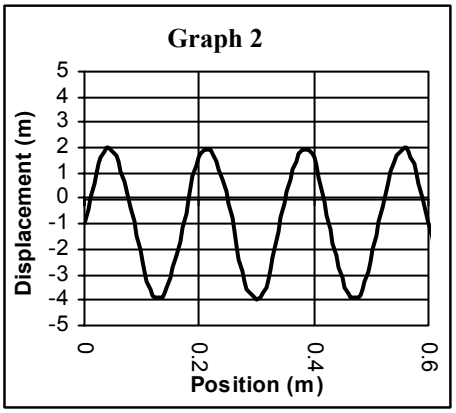
   D. Amplitude = _____ E. Period = _____
   F. Where will it come to rest?
   I. Find the fundamental frequency for this space.

   J. Find the wavelength of the fundamental for the space on graph 1.



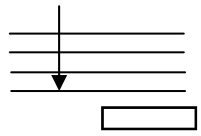
2. Use the graph at the side to answer the following.
   A. Amplitude =
   B. If it is a sound wave, find its frequency.

   C. How long would it take to complete 150 cycles?

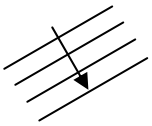


3. Show what will happen to these waves at the boundaries. And name which interaction is shown.

A. _____

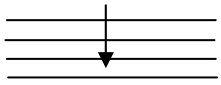


B. _____



Hard boundary

C. _____



Soft boundary

4. If $v = -(3\pi/2)\sin((\pi/4)t)$, answer the following:
   A. Find the displacement equation.

   B. Find the acceleration equation.

   C. What will its velocity be at t = 2 seconds?

   D. Which direction is it moving at that time?

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5. Given $x = 4\cos((\pi/3)t)$,
   A. Give the velocity equation:

   B. Give the acceleration equation:

   C. x_{max} = D. v_{max} = E. a_{max} =

   F. T = G. f =

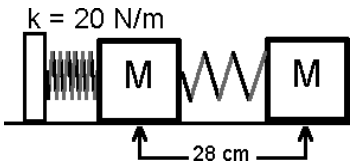
   H. When will it pass through its equilibrium position?

   I. How fast is it going at the equilibrium position?

   J. If the spring has a 600 g object attached to it, find its spring constant.

   K. Find the maximum force the spring exerts on the mass.

6. If it has a frequency of 1.75 Hz, find the value of M.



7. The number of cycles per second is known as the _____.
8. The number of seconds per cycle is known as the _____.
9. The maximum displacement or disturbance from its equilibrium position is known as the _____.
10. The distance from one point on a wave to the same point on the next wave is known as the _____.
11. A fertilized egg is known as a _____.
12. A sperm or egg is known as a _____.