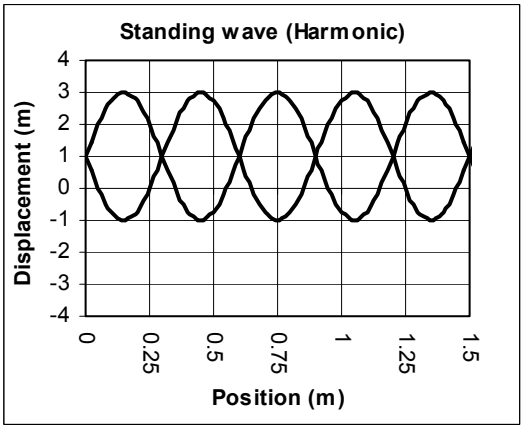
PreAP: Due: Mon., 6 (Assigned: Thurs., Mar 2)
Test Monday. (I decided to delay the test on Tues., when you were confused, but I wanted you to study for the test. ☺)

Harmonic Review 3 – Honors Only

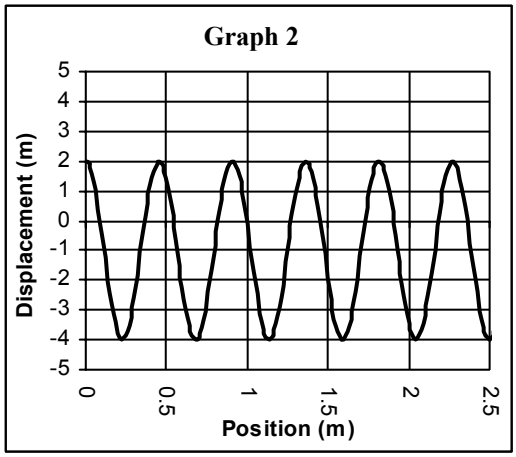
1. Use the standing wave at the right to answer the following.
   A. How many wavelengths is this harmonic?
   B. If this was a sound wave, find its frequency.



   C. Can we hear it's frequency?
   D. Is it a high or low note?
   E. Amplitude = _____ E. Period = _____
   F. Where is its equilibrium position?
   G. Where will it come to rest?
   H. In order to start the wave moving you must d_____ it.
   I. Find the fundamental for this space. (Can be done two ways; one utilizes the size of the space and that it is a sound wave.)

   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. Where will it come to rest?
   C. Find its wavelength.



   D. If a sound wave, find its frequency.

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

   F. If Graph 2 is a sound wave mark compression and rarefaction on it.

3. If $v = -\pi\sin((\pi/6)t)$, answer the following:
   A. Find the displacement equation.

   B. Find the acceleration equation.

   C. What will its velocity be at t = 1 seconds?

   D. Which direction is it moving?

   E. To completely cancel out Graph 2, you need a wave of what amplitude?

   F. Completely canceling out the a wave is known as:

4. Which of the following will change the speed of a wave?
   A. ____ Change the harmonic?
   B. ____ Change the length of the space?
   C. ____ Grab a harmonic at one of the nodes?
   D. ____ Tighten the string?
   E. _____ Change the string with a string of different mass or thickness?
   F. _____ Disturbing the string farther (more amplitude)?
   G. ____ Change the temperature of the medium?

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 equation?

   J. If the spring has a 1200 g object attached to it, find its spring constant.

   K. (Think about this and it's easy.) Find the maximum force the spring gives the mass.

6. How many grams of potassium bromide is saturated at 95° C?
7. If you tried to put 140 g of KBr into 100 mL of H_2O, at 95° C how much would precipitate out?
8. How much sodium chlorate can you put into 100 g of H_2O at 35° C?
9. So how much sodium chlorate can you put in 550 g of H_2O at 35° C?
10. How much table salt can 340 g of H_2O hold at 65° C?