PreAP: Due: Thurs., Feb 9 (Assigned: Tues., Feb 7)
Reg: Due: Fri., Feb 10 (Assigned: Wed., Feb 8)

Harmonic Motion 3

1. (Y or N) Which of the following affects the period of a pendulum?
   A. ____ Mass of the bob (mass at end of pendulum)?
   B. ____ Length of string?
   C. ____ Amplitude?

2. *From the Harmonic Motion Spreadsheet (Excel).* Describe how the graph changed when you changed the following:
   A. When the equilibrium position becomes more positive:

   B. When the equilibrium position becomes more negative:

   C. When the period is increased:

   D. When the period is decreased:

   E. When the amplitude is increased:

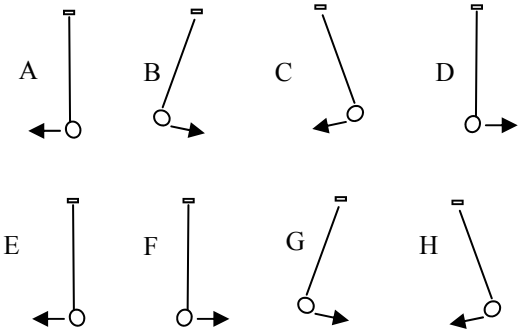
   F. When the amplitude is decreased:

   G. When the phase is increased:

   Understanding Phase (on Website)

3. Using the pendulums at the right answer the following:
   A. Using only letters A—D, give me the correct sequence for one complete cycle: B ___ ___ ___

   B. Which one is 180^o out-of-phase with E? ____
   C. Which one is 180^o out-of-phase with H? ____
   D. Which one is 90^o out-of phase with F?____
   E. Which one is 90^o out-of phase with G? ____
   F. Which one is in-phase with D? ___
   G. Which one is in-phase with H? ___



4. Drawing Harmonic Motion (Make all differences OBVIOUS):

A. 2 Pendulums: Pendulum 1 has a greater period.	B. 2 Pendulums: Pendulum 1 has a 1faster period.	C. 2 Hanging Spring-Mass Systems Spring 1 has a smaller amplitude.

5. Using the graph on the right, complete the following:
   A) Mark 1 cycle on the graph (trough to trough):
   B) What is the period of the motion on the graph?

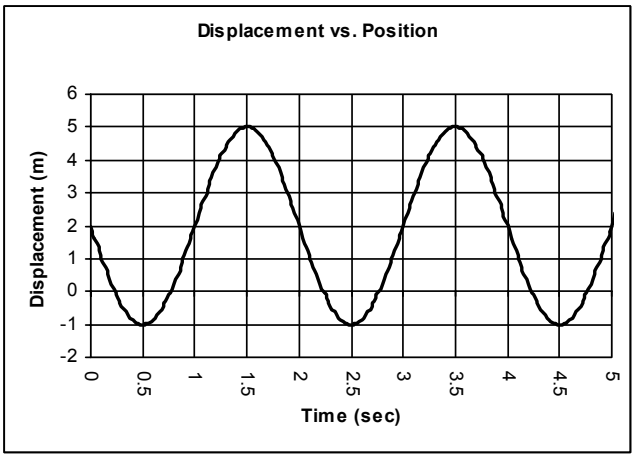
   C) What is the frequency of the graph?

   D) What is the amplitude of the graph?

   E) Label a Crest and Trough

   F) How many cycles does the graph show?

   G) What is 1/2 cycle after 1.5 sec.



6. Use Graphs A-B at the right to answer the following:
   A._____Which graph has the biggest amplitude?
   B._____Which graph has the longest period?
   C._____Which graph has an equilibrium position of 0 cm?
   D._____Which graph has the highest frequency?
   E._____Which graph has the smallest amplitude?
   F. _____Which graph has the lowest equilibrium position?
   G._____Which graph has the fastest period?
   H._____Which graph has the highest frequency?
   J. _____Which graph starts with a different phase from the others?
   K._____Which graph has the most energy?

   L. Find the period of Graph B.

   M. Find the amplitude of Graph C.

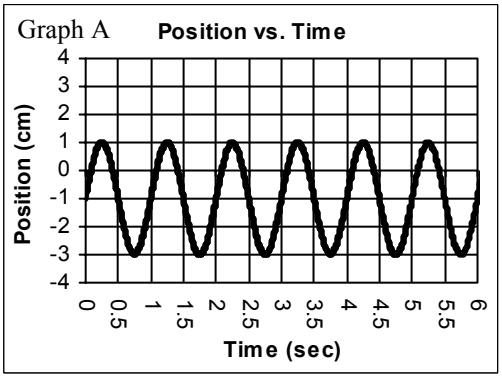
   N. Find the frequency of Graph A.

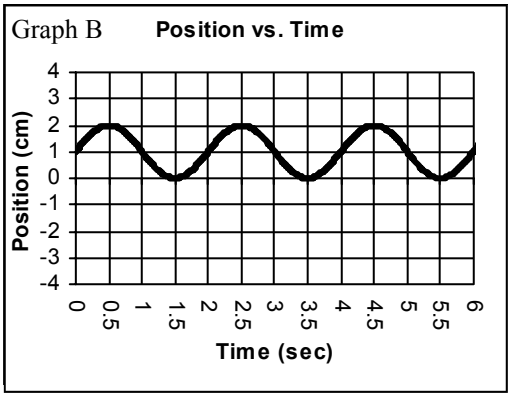
   O. Find the equilibrium position of Graph A.

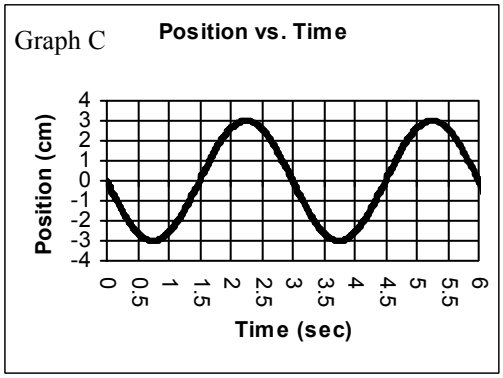
   P. Mark 1 cycle on Graph B (trough to trough, please).

   Q. How many cycles does Graph A show?

   R. How long would it take the motion on Graph C to complete 12 cycles?







7. A pendulum is 60 cm long. Find its period.

8. A spring is compressed 6 cm (k = 35 N/m). Find the force that caused it.

9. A 25 m/s wave has a period of 6 seconds. Find its wavelength.

10. A pendulum completes 3.5 cycles in 8.2 seconds. Find its period.

11. Sodium (chemical symbol: _____) is a metal or non-metal? It is in column:_____ of the periodic table. It has ____ valence electrons. It will gain/lose its valence electron/s, thus becoming positive/negative. Sodium will form what kind of compounds?

12. Fluorine (chemical symbol: _____) is a metal or non-metal? It is in column:_____ of the periodic table. It has ____ valence electrons. It will gain/lose its valence electron/s, thus becoming positive/negative. Fluorine will form what kind of compounds?

13. How many valence electrons does the figure show?
14. What element is it (if it is neutral)?
15. Will it gain or lose electrons?
16. What kind of compound/s will it make?