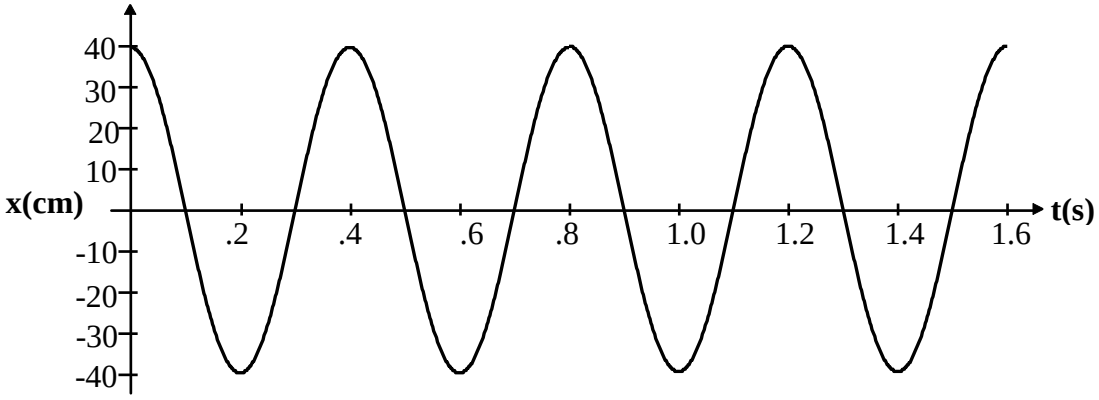
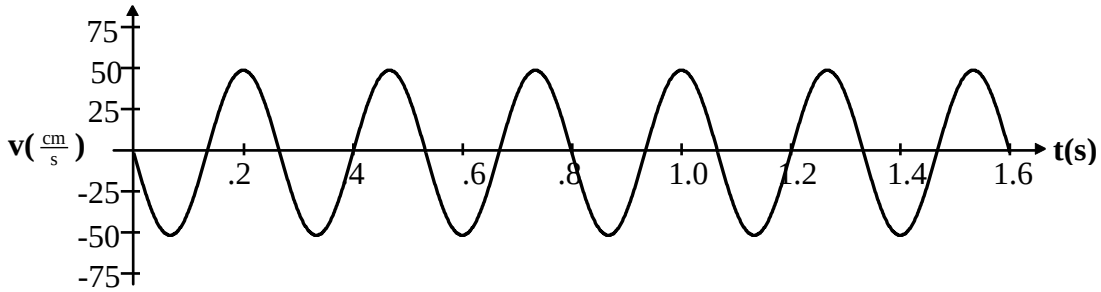
Name_____ **Date**_____ **Period**_____

AP Waves: Worksheet 6



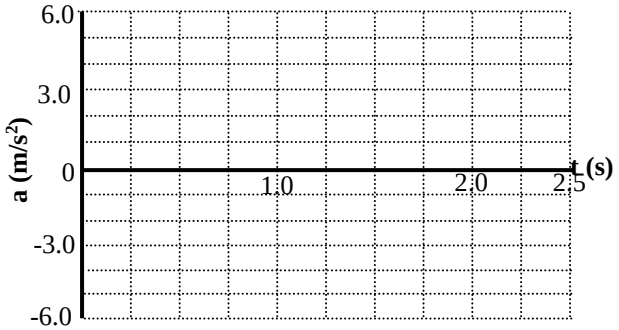
1. Write the trigonometric equation for position as a function of time for the oscillations represented by the graph above:

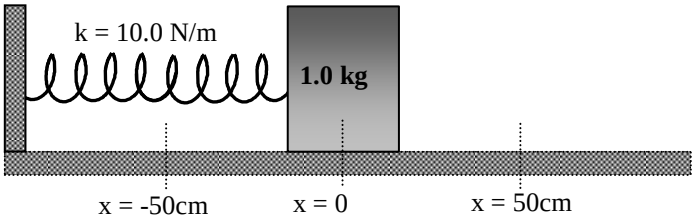


2. a. Write the equation for velocity as a function of time for the oscillations shown on this graph:

   b. If the spring has a spring constant of 111 $\frac{N}{m}$, how much mass is being oscillated?

3. The equation for acceleration as a function of time for a mass-spring oscillation is $a = 2.5\frac{m}{s^2}\sin(12.56\frac{1}{s}t)$. Sketch in the graph below from 0 to 2.5s.





4. Above is a block with a mass of 1.0 kg resting on a frictionless surface. The block is attached to the end of a spring with a spring constant of 10.0 N/m. The block is pulled to the right 50.0 cm and released. When it gets to x = 0 time is started at time t = 0.

   a. What is the equation for position as a function of time?

   b. What is the equation for velocity as a function of time?

   c. What is the equation for acceleration as a function of time?

   d. On the grids below sketch the graphs for velocity and acceleration vs. time.