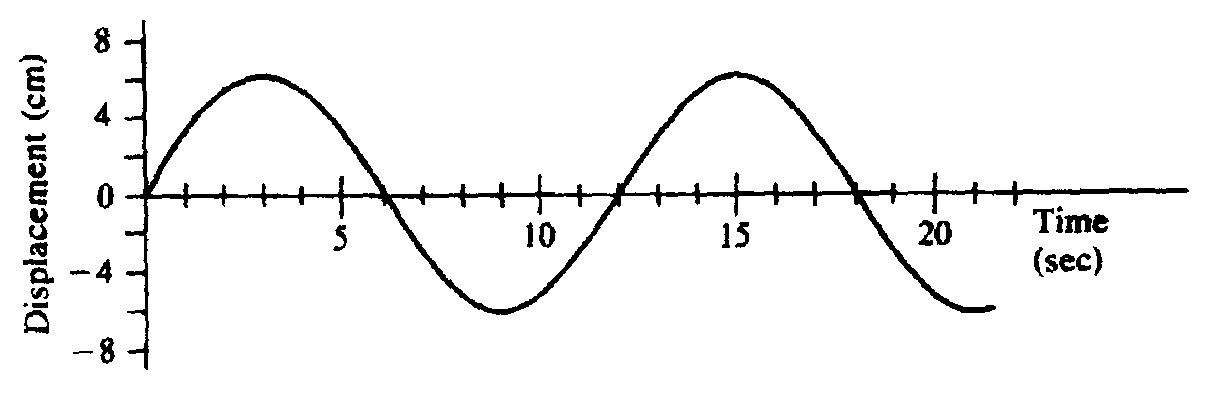
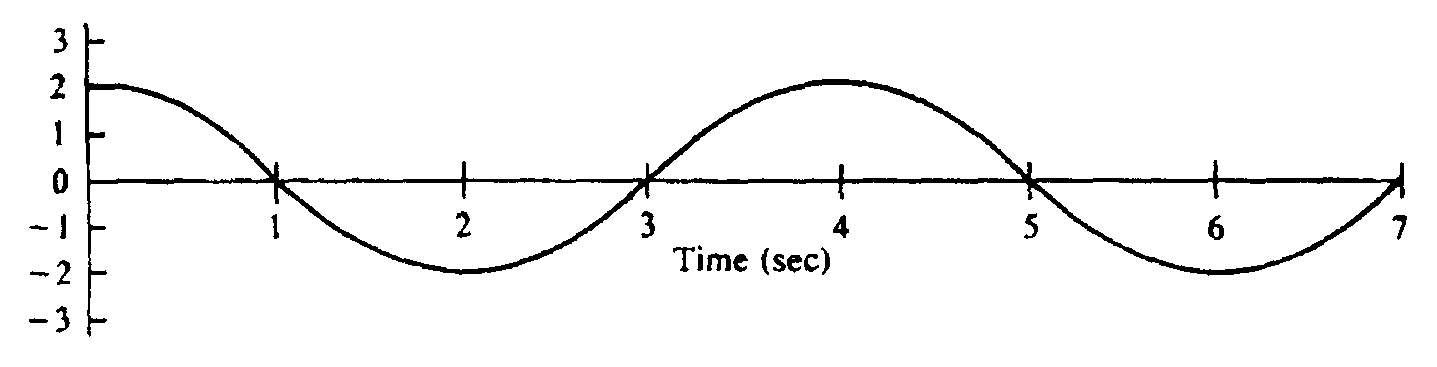
Simple Harmonic Motion Problems

1. The graph below shows an object’s displacement as a function of time.



* 1. What is the period of motion?
  2. What is the frequency?
  3. What is the angular frequency?
  4. What is the amplitude?
  5. Write a displacement equation for the motion above.
  6. What is the object’s displacement at 10 s?

1. The graph below shows an object’s displacement as a function of time.



* 1. What is the angular frequency?
  2. Write a displacement equation for the motion above.
  3. What is the object’s displacement at 5 s?
  4. How far does the object travel in the first 5 s?

1. The period of an oscillator is 6 s and the distance between its minimum and maximum displacement is 10 cm. At t = 0 s, it is in the positive amplitude position.
   1. Write a displacement equation for the motion described.
   2. What is the object’s position at t = 15 s?
2. What is the period of a pendulum that is 0.50 m long?
3. A pendulum completes 12 cycles in 40 s.
   1. What is the pendulum’s frequency?
   2. What is the period’s period?
   3. What is the length of the pendulum if it is on Earth?
4. After landing on Planet X, you carefully measure the period of a 2.0-m long pendulum to be 2.8 seconds. What is the acceleration due to gravity on planet X?