***Waves***

Use the following to answer questions 1-3:

The displacement of a vibrating string versus position along the string is shown in the figure. The periodic waves have a speed of 10 cm/s. **A** and **B** are two points on the string.



1. What is the amplitude of the wave?

2. What is the wavelength of the wave?

3. What is the frequency of the wave?

4. Sound waves have a frequency of 250 Hertz (waves per second) and a wavelength of 1.30 meters. What is the speed of sound waves?

5. Water waves in a small tank are 6 cm long. They pass a given point at a rate of 14.8 waves every three seconds.

a) What is the speed of the water waves?

b) What is the period of these water waves?

6. Microwaves are electromagnetic waves that travel at a speed of 3.0 x 108 m/s. A microwave oven operates at a frequency of 2450 MHz (2.45 x 109waves/second)

a) What is the period of these waves?

b) What is the wavelength of these microwaves?

c) How many microwaves fit in the oven if the length of the oven is 45 cm?

d) How many waves are produced if the microwave is “on” for 1 minute?

7. A typical light wave has a wavelength of 580 nanometers (580 x 10-9 m). If the speed of light is 3.0 x 108 m/s what is the frequency of the typical light wave?

8. Radio waves travel at the speed of light. Radio station WDZH broadcasts at a frequency of 98.7 MHz. What is the wavelength of the radio station’s radio waves?