A violin string of length 32cm and mass of 0.58 gram vibrates at a frequency of 2800 Hz when it is in the fourth harmonic.
   a. What is the wavelength of the vibrating string?
   b. What is the velocity of the waves on the string?
   c. What is the tension on the string?
   d. If the maximum displacement is 0.825 mm, what is the wave function?

An infinitely long wire of mass per unit length 1.77 gm/m is under a tension of 27.5 nts(newtons). An observer next to the wire notices 22 peaks pass him in a time of 0.8 seconds to the left.
   a. What is the wave velocity of the wire?
   b. What is the frequency of the waves?
   c. What is the wavelength?
   d. If the maximum displacement is 0.5 mm, what is the equation of the wave?

You hear sound from two pipes that are at the same distance from you. Pipe A is open at one end and closed on the other, while pipe B is open at both ends. When both are oscillating in their first overtone mode, you hear a beat frequency of 5.0 Hz. Assume room temperature of 20° C or 293 Kelvin, and speed of sound to be 344 m/s.
   a. If the length of the pipe A is 2.3 m, calculate the possible length of pipe B?
   b. With a temperature of 40° C, assuming the shortest length of pipe B, what would the beat frequency be with both still being in the overtone modes?