SOUND & RESONANCE PROBLEMS

1. A tuning fork vibrates at a rate of 440 Hz. If the temperature on a certain winter day is 0 °C, what will be the speed and wavelength of the wave?

1. On a warm summer day the temperature very easily reaches 30 °C. What are the speed and wavelength of the same 440 Hz tuning fork?

1. Suppose that you decide to check your answer to problem 2 by performing the glass tube in water experiment. If you use a tube that is 2.5 cm in diameter calculate the **first two values** for the length of the air column that you predict will cause resonance.

1. Using a 512 Hz tuning fork you hold it over a 2.0 cm diameter tube that is in a container of water. By moving the tube up and down you are able to produce resonance when the air column in the tube is 16.0 cm long. Based on this information determine the temperature of the air that day to the nearest whole degree.