Pre-Lab #3: Resonance

Due at beginning of lab:

T (°C)	v (m/s)
-20	
-10	
0	
+10	
+20	

#1) The speed of sound in air depends on the temperature. The "accepted speed" for sound in air is given by the formula: $v=332$ m/s $\pm$ 0.6 m/s/°C. Fill in the following table:

#2) Now we will do a similar exercise with English unites.
Use: $v=1087$ ft/s $\pm$ 1.1 f/s/°F, and fill in the table. CAUTION: Remember the base temperature in English units is 32°F, not zero!!!

T (°F)	v (ft/s)
12	
22	
32	
42	
52	

#3) You are given a L=8ft long OPEN organ pipe. Compute the frequencies and wavelengths for the lowest 3 resonant modes. Sketch the wave pattern in the figures. (Assume the temperature is such that v=1200ft/s.)

$f =$

$\lambda =$

$f =$

$\lambda =$

$f =$

$\lambda =$

#4) You are given a L=8ft long CLOSED organ pipe. Compute the frequencies and wavelengths for the lowest 3 resonant modes. Sketch the wave pattern in the figures. (Assume the temperature is such that v=1200ft/s.) (I suggest you use the back of the page.)