1. A tuning fork has a frequency of 522 Hz. When a second tuning fork is struck, beat interference patterns occur with a beat frequency of 7 Hz. What is the lowest and highest possible **frequency** for the second fork?
2. Two tuning forks are played simultaneously. The first tuning fork has a frequency of 1080 Hz and the second has a frequency of 1075 Hz. Determine the **beat frequency** for these tuning forks.
3. A standing wave is produced in a vibrating violin string. If the length of the string is 1.5 m, the note being played is the 2nd overtone, and the frequency is 60 Hz, what is the **speed** of the wave?
4. A closed organ pipe of length 0.750 m is played when the speed of sound in air is 341 . What is the **fundamental frequency** of the pipe?
5. A 445 Hz tuning fork is held above a closed pipe.
6. What is the **wavelength** for this frequency if the air temperature is 18.0°C?
7. Find the **length** of the resonating air column if this is the fundamental frequency.
8. The frequency of a tuning fork is unknown. A student uses a closed air column at 27.0 °C and finds the first resonance when the column is 10.1 cm long. What is the **frequency** of the tuning fork?
9. A soprano saxophone is an open pipe. If all keys are closed, it is approximately 65 cm long. Using 343 as the speed of sound, find the **lowest frequency** that can be played on this instrument.
10. A bugle can be thought of as an open pipe. If a bugle were straightened out, it would be 2.65 m long.
11. If the speed of sound is 343 , find the **lowest frequency** that is resonant in a bugle.
12. Find the next two higher **resonant frequencies** in the bugle