Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_

Chapter 12 – Sound PP B – Harmonics

1. What is the fundamental frequency of a 0.20 m long organ pipe that is closed at one end, when the speed of sound in the pipe is 352 m/s.
2. A flute is essentially a pipe open at both ends. The length of the flute is approximately 66.0 cm. What are the first three harmonics of a flute when all keys are closed, making the vibrating air column approximately equal to the length of the flute? The speed of sound is 340 m/s.
3. What is the fundamental frequency of a guitar string when the speed of waves on the spring is 115 m/s and the effective string lengths are as follows:
4. 70.0 cm b) 50.0 cm c) 40.0 cm
5. A violin string is 50.0 cm long has a fundamental frequency of 440 Hz. What is the speed of the wave on the string?