

Chapter **13** HOLT PHYSICS **Mixed Review** *continued*

3. A 330 Hz tuning fork is vibrating after being struck. It is placed on a table near but not directly touching other objects, including other tuning forks. Eventually one glass and one other tuning fork start vibrating. Explain why this happens.

4. The first harmonic in a pipe closed at one end is 487 Hz.

a. Find the next two harmonic frequencies that will occur in this pipe.

b. What are the corresponding wavelengths of the first three harmonics?
(Hint: assume the speed of sound is 345 m/s.)

c. What is the length of this pipe?

d. Repeat this exercise for a pipe open at both ends.

5. A piano tuner uses a 440 Hz tuning fork to tune a string that is currently vibrating at 445 Hz.

a. How many beats per second does he hear?

b. What other frequency could produce the same sound effect? Explain why.

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