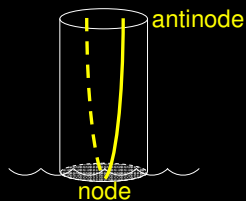


Questions of the Day

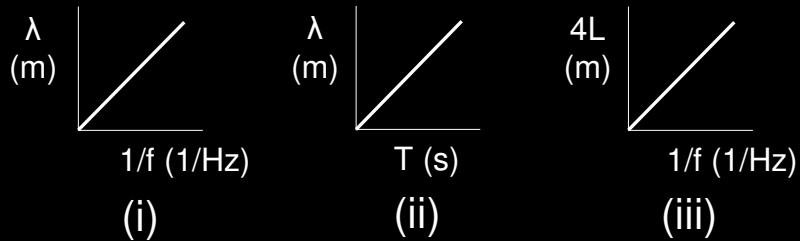
Sound Waves

Question of the Day



- Previously, we have seen that standing waves have nodes (places of no displacement) and antinodes (places of maximum displacement). A pipe is partially submerged in water, as shown, resulting in an open end and a closed end.
 - What would occur at the open end, a node or antinode?
 - What would occur at the closed end, a node or antinode?
- Answer: *antinode at open end, node at closed end*

Question of the Day



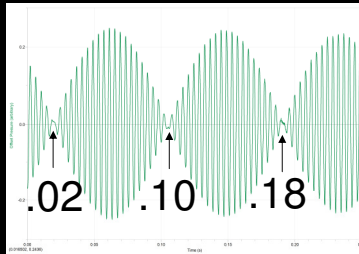
- In our speed of sound lab, which of the above graphs could you use in order to have the slope represent wave speed?
- Answer: *all of the above!*

Question of the Day



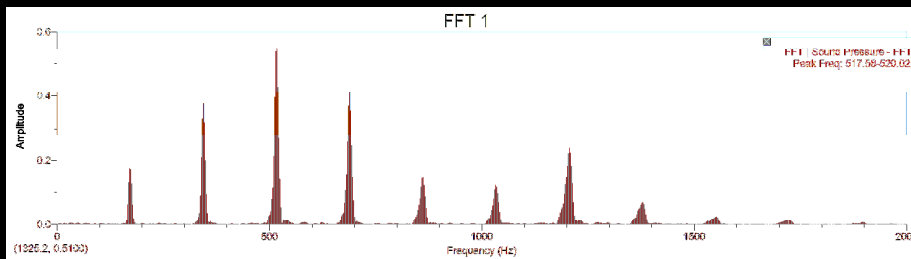
- The way in which speakers and fans move air molecules is:
 - a) the same.
 - b) different.
- Answer: *(b) different. Fans transport air molecules, speakers transport energy.*

Question of the Day



- What is the beat frequency?
- Answer: $2 \text{ beats} / (.18 \text{ s} - .02 \text{ s}) = 2 \text{ beats} / 0.16 \text{ s} = 12.5 \text{ Hz}$

Question of the Day



- What is the...
 - fundamental frequency?
 - peak frequency?
 - 3rd overtone frequency?
- Was this sound produced by a tuning fork? What's the evidence?
- Answer: $\sim 170 \text{ Hz}$, $\sim 520 \text{ Hz}$, $\sim 690 \text{ Hz}$; *not produced by a tuning fork as evidenced by the multiple overtones*

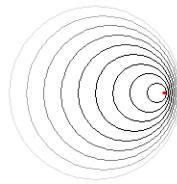
Question of the Day



- You're at a car race. What do the cars sound like as they zoom past you? Why?
- Answer: *the "racecar sound effect", high pitch followed by low pitch, the Doppler effect*



Question of the Day



- The circles in the diagram represent sound waves emitted at a constant frequency. The source is represented by the dot. What is the wave source velocity?
 - a. zero
 - b. slower than the speed of the waves, but not zero
 - c. equal to the speed of the waves
 - d. faster than the speed of the waves
 - e. cannot be determined
- Answer: *slower than the speed of the waves*