PHYS 211 Sample Final Question

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| •43 | |  | | --- | |  |   [http://edugen.wileyplus.com/edugen/courses/crs4957/common/art/ssm.gif](javascript:parent.xlinkobject('halliday1813c17-prob-0008',%20'xlinks_db.xml'))  In Fig. [17-40](http://edugen.wileyplus.com/edugen/courses/crs4957/halliday9118/halliday9088c17/halliday9118/halliday9088c17/halliday9088c17xlinks.xform?id=halliday9088c17-fig-0040), *S* is a small loudspeaker driven by an audio oscillator with a frequency that is varied from 1000 Hz to 2000 Hz, and *D* is a cylindrical pipe with two open ends and a length of 45.7 cm. The speed of sound in the air-filled pipe is 344 m/s.  (a) Sketch the first three modes of vibrations. (b) At how many frequencies does the sound from the loudspeaker set up resonance in the pipe? What are the (c) lowest and (d) second lowest frequencies at which resonance occurs?   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | http://edugen.wileyplus.com/edugen/courses/crs4957/common/art/pixel.gif | |  | | --- | | http://edugen.wileyplus.com/edugen/courses/crs4957/common/art/pixel.gif | | |  |  |  | | --- | --- | --- | | |  | | --- | | http://edugen.wileyplus.com/edugen/courses/crs4957/common/art/pixel.gif | | http://edugen.wileyplus.com/edugen/courses/crs4957/halliday9118/halliday9088c17/image_n/nt0057-y.gif | | | | |