

A 2.5 m long tube, open at both ends, is filled with a gas. The frequency of a certain harmonic is 500 Hz and the frequency of the next harmonic is 600 Hz. What is the speed of sound in the tube?

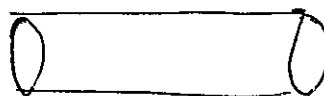
$$f_n = n \frac{v}{2L}$$

$$f_{n+1} = (n+1) \frac{v}{2L}$$

$$f_{n+1} - f_n = \frac{v}{2L}$$

$$600 - 500 = \frac{v}{2(2.5)}$$

$$v = 500 \text{ m/s}$$



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