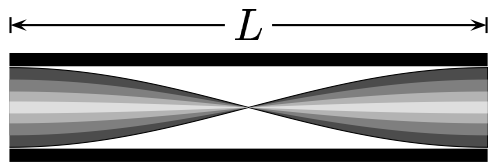
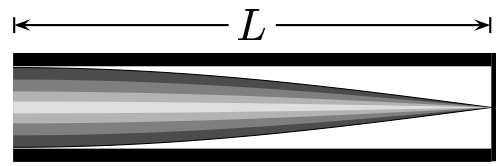


The wave patterns of the fundamental modes for the open-open and open-close organ pipes are shown above.



open – open



open – closed

The wavelengths of the fundamental modes are

- A) open-open L open-closed $2L$.
- B) open-open L open-closed $4L$.
- C) open-open $2L$ open-closed $2L$.
- D) open-open $2L$ open-closed $4L$.

Notice that the standing wave pattern for a full wavelength contains two loops.

For the open-open case, it corresponds to the length of one loop, so

$$L = \frac{\lambda}{2}, \text{ or } \lambda = 2L.$$

For the open-closed case, $L = \frac{\lambda}{4}$, or $\lambda = 4L$.

Answer D

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