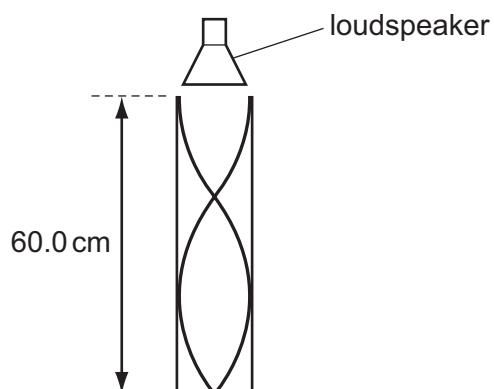


- 27 The sound from a loudspeaker placed above a tube causes resonance of the air in the tube.

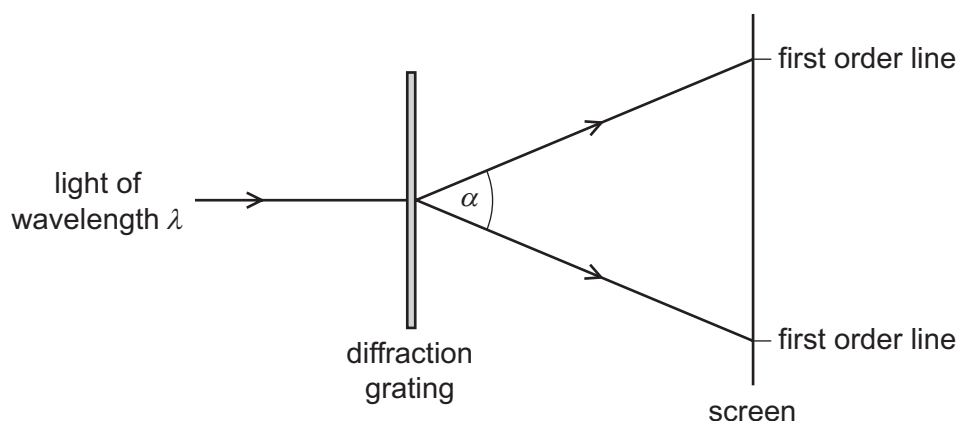
A stationary wave is formed with two nodes and two antinodes as shown.



The speed of sound in air is  $330 \text{ m s}^{-1}$ .

What is the frequency of the sound?

- A** 413 Hz      **B** 550 Hz      **C** 830 Hz      **D** 1650 Hz
- 28 Light of wavelength  $\lambda$  passes through a diffraction grating with slit spacing  $d$ . A series of lines is observed on a screen.



What is the angle  $\alpha$  between the two first order lines?

- A**  $\sin^{-1}\left(\frac{\lambda}{2d}\right)$       **B**  $\sin^{-1}\left(\frac{\lambda}{d}\right)$       **C**  $2\sin^{-1}\left(\frac{\lambda}{2d}\right)$       **D**  $2\sin^{-1}\left(\frac{\lambda}{d}\right)$

**Space for working**