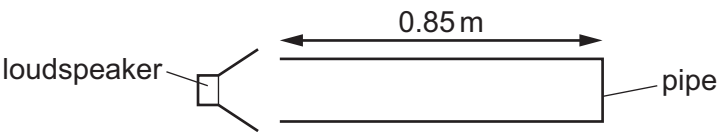


- 27 A pipe, closed at one end, has a loudspeaker at the open end. For some frequencies of sound from the loudspeaker, a stationary sound wave is formed in the air within the pipe with an antinode at the open end of the pipe.

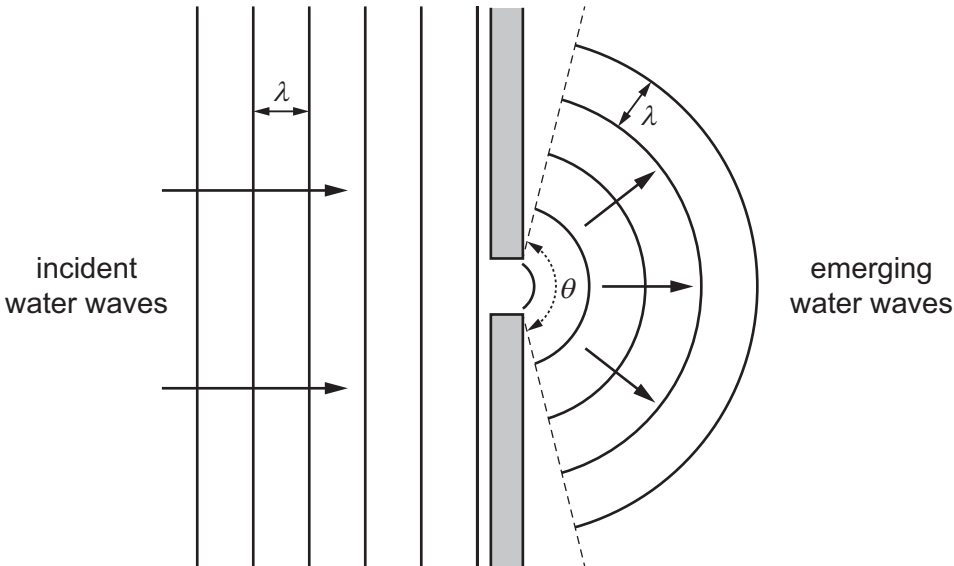


The length of the pipe is 0.85 m.

The speed of sound in air is  $340 \text{ m s}^{-1}$ .

Which frequency of sound from the loudspeaker would **not** produce a stationary wave?

- A** 100 Hz      **B** 200 Hz      **C** 300 Hz      **D** 500 Hz
- 28 Water waves of wavelength  $\lambda$  are incident normally on an obstacle with a narrow gap. The width of the gap is equal to  $\lambda$ . The waves from the gap emerge over an angle  $\theta$ , as shown.



The gap is slowly widened.

Which changes, if any, occur to  $\theta$  and to the wavelength of the emerging waves?

	$\theta$	wavelength
<b>A</b>	decreases	remains the same
<b>B</b>	increases	remains the same
<b>C</b>	remains the same	decreases
<b>D</b>	remains the same	increases