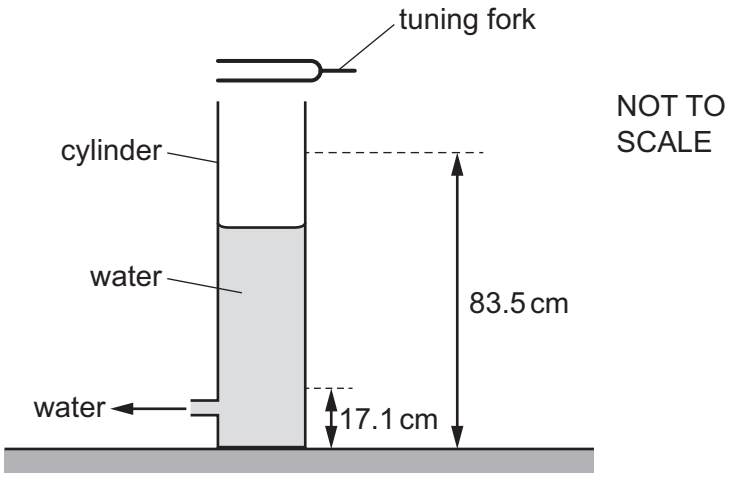
24 A vibrating tuning fork is held above a glass cylinder filled to the top with water. The water level is steadily lowered. A loud sound is first heard when the water level is 83.5 cm above the bench. The next loud sound is heard when the water level is 17.1 cm above the bench.



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

What is the frequency of the tuning fork?

A 128 Hz **B** 256 Hz **C** 384 Hz **D** 512 Hz

25 A train that is moving in a straight line along a railway track has a whistle that continuously emits sound of frequency *f*.

A woman standing by the side of the track hears sound of frequency 0.85*f*.

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

What is the velocity of the train?

A 51 m s^{-1} away from the woman

B 51 m s^{-1} towards the woman

C 60 m s^{-1} away from the woman

D 60 m s^{-1} towards the woman

26 Orange light in a vacuum has a wavelength of 600 nm.

What is the frequency of this light?

A 180 Hz **B** 5.0×10^{5} Hz **C** 1.8×10^{11} Hz **D** 5.0×10^{14} Hz

27 A stationary sound wave has a series of nodes. The distance between the first and the sixth node is 30.0 cm.

What is the wavelength of the sound wave?

A 5.0 cm **B** 6.0 cm **C** 10.0 cm **D** 12.0 cm