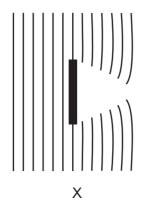
26 The warning signal on an ambulance has a frequency of 600 Hz. The speed of sound is 330 m s⁻¹. The ambulance is travelling with a constant velocity of 25 m s⁻¹ towards an observer.

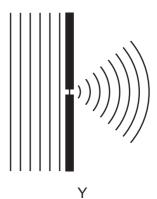


Which overall change in observed frequency takes place between the times at which the ambulance is a long way behind the observer and when it is a long way in front of the observer?

- **A** 49 Hz
- **B** 84 Hz
- **C** 91 Hz
- **D** 98 Hz
- 27 Diagrams X and Y show the passage of water waves around an obstacle and through a gap.

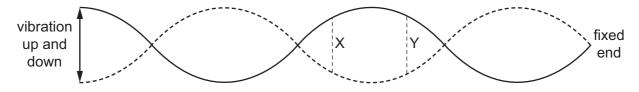
The thick lines are barriers to the waves and each thin line represents a wavefront.





Which statement is correct?

- **A** Diagrams X and Y both illustrate diffraction.
- **B** Diagrams X and Y both illustrate interference.
- **C** Only diagram X illustrates interference.
- **D** Only diagram Y illustrates diffraction.
- 28 The diagram shows a long rope fixed at one end. The other end is moved up and down, setting up a stationary wave.



What is the phase difference between the oscillations at X and at Y?

- **A** 0
- **B** 45°
- **C** 90°
- **D** 135°