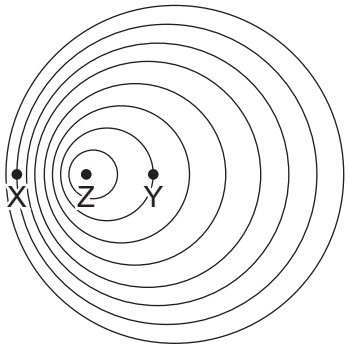
25 A source of sound of frequency *F* at point Z is moving at a steady speed. The pattern of the emitted wavefronts is shown.



Which row describes the frequencies of the sound heard by stationary observers at X and Y?

	frequency heard at X	frequency heard at Y
A	$<F$	$<F$
B	$<F$	$>F$
C	$>F$	$<F$
D	$>F$	$>F$

26 A car travelling at a steady speed in a straight line passes close to a stationary observer. The observer measures the frequency of the sound from the engine.

As the car approaches, the observed frequency is 220 Hz. When the car moves away, the observed frequency is 180 Hz.

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

What is the speed of the car?

A 8.5 $m\,s^{-1}$ **B** 31 $m\,s^{-1}$ **C** 34 $m\,s^{-1}$ **D** 38 $m\,s^{-1}$

27 Which frequency of electromagnetic radiation could be ultraviolet?

A 1.0×10^{6} Hz

B 1.0×10^{9} Hz

C 1.0×10^{12} Hz

D 1.0×10^{15} Hz