23 A transverse progressive wave on a string has a wavelength of 12 cm and an amplitude of 1.5 cm. The speed of the wave on the string is 48 cm s^{-1}.

What is the distance travelled by a point on the string in a time of 2.0 s?

A 12 cm   **B** 24 cm   **C** 48 cm   **D** 96 cm

24 An ambulance siren emits a sound with a single frequency f.

The ambulance travels towards, passes close to, and then travels away from a stationary observer.

Which statement describes the frequency of the sound detected by the observer as the ambulance **passes** the observer?

A equal to f and decreasing

B equal to f and increasing

C greater than f and constant

D less than f and constant

25 An electromagnetic wave has a wavelength of 138 pm in a vacuum.

To which region of the electromagnetic spectrum does this wave belong?

A radio wave

B microwave

C visible light

D X-ray