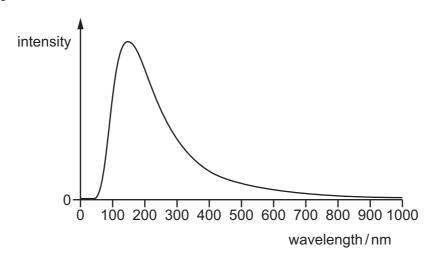
24 A source of sound of frequency $1000\,\mathrm{Hz}$ directly approaches a stationary observer. The observer measures the frequency of the received sound to be $1500\,\mathrm{Hz}$. The speed of sound in still air is $330\,\mathrm{m\,s^{-1}}$.

What is the speed of the source of sound?

- **A** $110 \,\mathrm{m \, s}^{-1}$
- **B** $165 \,\mathrm{m\,s}^{-1}$
- $C 220 \,\mathrm{m \, s^{-1}}$
- **D** $330 \,\mathrm{m \, s^{-1}}$
- 25 The graph shows how the intensity of electromagnetic radiation emitted from a distant star varies with wavelength.



In which region of the electromagnetic spectrum is the radiation of greatest intensity?

- **A** infrared
- B visible light
- **C** ultraviolet
- **D** X-ray
- 26 Which statement concerning a stationary wave is correct?
 - **A** All the particles between two adjacent nodes oscillate in phase.
 - **B** The amplitude of the stationary wave is equal to the amplitude of one of the waves creating it.
 - **C** The wavelength of the stationary wave is equal to the separation of two adjacent nodes.
 - **D** There is no displacement of a particle at an antinode at any time.
- 27 Which waves would best demonstrate diffraction through a doorway?
 - A sound waves
 - **B** ultraviolet waves
 - C visible light waves
 - **D** X-rays