- 23 Which statement about sound waves in air at constant temperature is correct?
  - Amplitude is inversely proportional to velocity.
  - В Frequency is inversely proportional to wavelength.
  - **C** Velocity is proportional to wavelength.
  - **D** Wavelength is proportional to amplitude.
- 24 A source of sound of constant power P is situated in an open space. The intensity I of sound at distance r from this source is given by

$$I = \frac{P}{4\pi r^2}.$$

How does the amplitude a of the vibrating air molecules vary with the distance r from the source?

- **A**  $a \propto \frac{1}{r}$  **B**  $a \propto \frac{1}{r^2}$  **C**  $a \propto r$  **D**  $a \propto r^2$

**Space for working**