23 Which statement about sound waves in air at constant temperature is correct?

A Amplitude is inversely proportional to velocity.

B 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