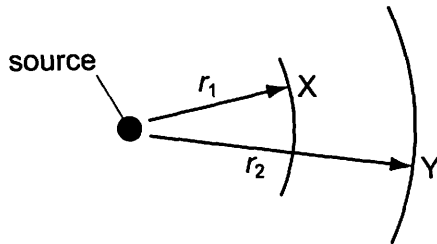**17** The intensity I of sound waves, transmitted equally in all directions, diminishes with distance r in accordance with the relation $I \propto \dfrac{1}{r^2}$.

The diagram shows a sound source and two points, X and Y, at distances r_1 and r_2.

Which expression gives the ratio $\dfrac{\text{amplitude of the sound waves at X}}{\text{amplitude of the sound waves at Y}}$?

A $\dfrac{r_1}{r_2}$ **B** $\dfrac{r_2}{r_1}$ **C** $\left(\dfrac{r_1}{r_2}\right)^2$ **D** $\left(\dfrac{r_2}{r_1}\right)^2$

The diagram shows part of a transverse progressive wave travelling to the right along a string.