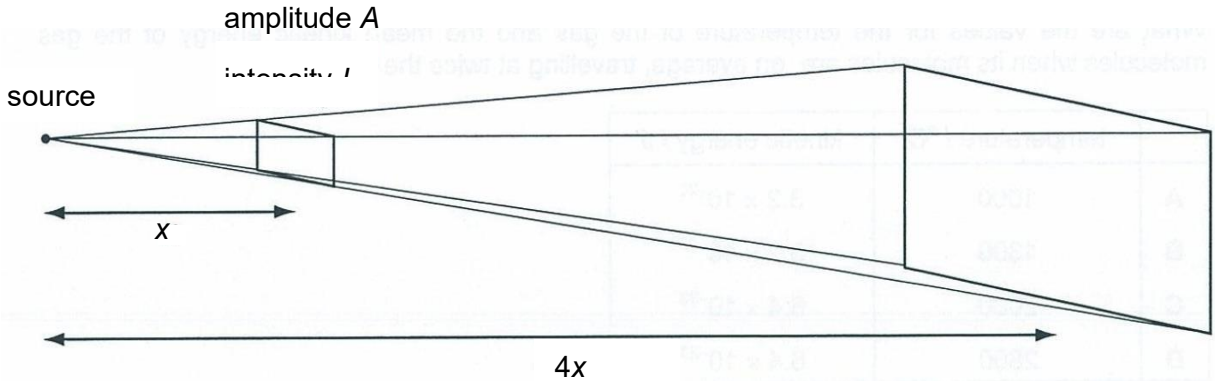
**15** Energy from a point source of waves spreads out uniformly in all directions. The amplitude and intensity of the waves at a distance *x* from the source are *A* and *I* respectively, as shown.




Assuming no absorption by the medium through which the waves are travelling, what are the amplitude and intensity at a distance of 4*x*?

| | intensity at distance 4*x* | amplitude at distance 4*x* |
|---|---|---|
| **A** | $\frac{I}{16}$ | $\frac{A}{4}$ |
| **B** | $\frac{I}{4}$ | $\frac{A}{16}$ |
| **C** | $\frac{I}{4}$ | $\frac{A}{2}$ |
| **D** | $\frac{I}{2}$ | $\frac{A}{4}$ |