

**2** A metal sphere of radius  $r$  is dropped into a tank of water. As it sinks at speed  $v$ , it experiences a drag force  $F$  given by  $F = krv$ , where  $k$  is a constant.

What are the SI base units of  $k$ ?

A  $\text{kg m}^2 \text{s}^{-1}$

B  $\text{kg m}^{-2} \text{s}^{-2}$

C  $\text{kg m}^{-1} \text{s}^{-1}$

D  $\text{kg m s}^{-2}$

**3** An Olympic athlete of mass 80 kg competes in a 100 m race.