

- 2** The Stefan-Boltzmann law for the rate of thermal energy emitted per unit surface area of a body is given by

$$\frac{P}{A} = e\sigma T^4,$$

where  $P$  is the rate of thermal energy emitted,  $A$  is the surface area,  $T$  is the thermodynamic temperature and  $e$ , a dimensionless constant, is the emissivity of the body and  $\sigma$  is the Stefan-Boltzmann constant.

Which is the S.I. base unit for  $\sigma$ ?

**A**  $\text{kg s}^{-3} \text{K}^{-4}$

**B**  $\text{kg s}^{-1} \text{K}^4$

**C**  $\text{W m}^{-2} \text{K}^{-4}$

**D**  $\text{W m}^{-2} \text{ } ^\circ\text{C}^{-4}$

- 3** A stone is projected perpendicularly to a slope with a velocity of  $5.0 \text{ m s}^{-1}$  and lands  $2.4 \text{ m}$