1 Which quantity with its unit is correct?

A acceleration of a bicycle = $1.4\,\text{m}\,\text{s}^{-1}$

B electric current in a lamp = $0.25\,\text{A}\,\text{s}^{-1}$

C electric potential difference across a battery = $8.0\,\text{J}\,\text{C}^{-1}$

D kinetic energy of a car = $4500\,\text{N}\,\text{m}^{-1}$

2 The luminosity L of a star is given by

$$L = 4\pi r^2 \sigma T^4$$

where

r is the radius of the star,

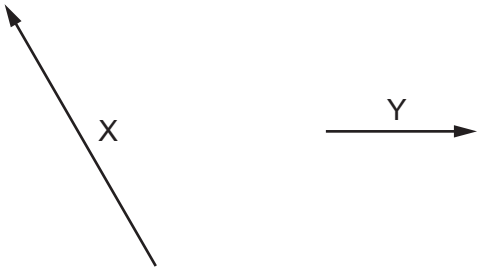
T is the temperature of the star,

σ is a constant with units $\text{W}\,\text{m}^{-2}\,\text{K}^{-4}$.

What are the SI base units of L?

A $\text{kg}\,\text{m}^2\,\text{s}^{-1}$ **B** $\text{kg}\,\text{m}^2\,\text{s}^{-2}$ **C** $\text{kg}\,\text{m}^2\,\text{s}^{-3}$ **D** $\text{kg}\,\text{m}^2\,\text{s}^{-4}$

3 The diagram shows two vectors X and Y, drawn to scale.



If X = Y – Z, which diagram best represents the vector Z?

A **B** **C** **D**