

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

What are the SI base units of L ?

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

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

C $\text{kg m}^2 \text{s}^{-3}$

D $\text{kg m}^2 \text{s}^{-4}$

- 3 The diagram shows two vectors \mathbf{X} and \mathbf{Y} drawn to scale