

1 Which list shows increasing lengths from beginning to end?

A 1 cm 1 nm 1 mm 1 μm

B 1 μm 1 mm 1 nm 1 cm

C 1 nm 1 μm 1 mm 1 cm

D 1 mm 1 cm 1 μm 1 nm

2 Which equation contains only scalar quantities?

A acceleration = $\frac{\text{force}}{\text{mass}}$

B power = $\frac{\text{work}}{\text{time}}$

C pressure = $\frac{\text{force}}{\text{area}}$

D velocity = $\frac{\text{displacement}}{\text{time}}$

3 The time T taken for a satellite to orbit the Earth on a circular path is given by the equation

$$T^2 = \frac{kr^3}{M}$$

where r is the radius of the orbit, M is the mass of the Earth and k is a constant.

What are the SI base units of k ?

A $\text{kg}^{-1}\text{m}^{-3}\text{s}^2$

B $\text{kg}^{-1}\text{m}^3\text{s}^2$

C $\text{kgm}^{-3}\text{s}^2$

D kgm^3s^2

4 Which row gives reasonable estimates for the mass and the speed of an adult running?

	mass/kg	speed/ ms^{-1}
A	6×10^0	5×10^1
B	6×10^1	5×10^0
C	6×10^1	5×10^1
D	6×10^2	5×10^0