

- 1 Decimal sub-multiples and multiples of units are indicated using a prefix to the unit. For example, the prefix milli (m) represents 10^{-3} .

Which of the following gives the sub-multiples or multiples represented by pico (p) and giga (G)?

	pico (p)	giga (G)
A	10^{-9}	10^9
B	10^{-9}	10^{12}
C	10^{-12}	10^9
D	10^{-12}	10^{12}

- 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** kg m s^{-2}

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

What is the best estimate of his mean kinetic energy during the race?

- A** $4 \times 10^2 \text{ J}$ **B** $4 \times 10^3 \text{ J}$ **C** $4 \times 10^4 \text{ J}$ **D** $4 \times 10^5 \text{ J}$

- 4 In an experiment, a radio-controlled car takes $2.50 \pm 0.05 \text{ s}$ to travel $40.0 \pm 0.1 \text{ m}$.

What is the car's average speed and the uncertainty in this value?

- A** $16 \pm 1 \text{ m s}^{-1}$
B $16.0 \pm 0.2 \text{ m s}^{-1}$
C $16.0 \pm 0.4 \text{ m s}^{-1}$
D $16.00 \pm 0.36 \text{ m s}^{-1}$