Speed and acceleration

Speed unit	Metres per second (m/s)
Velocity	The vector form of speed. Speed in a given direction
Acceleration	The rate of change of velocity
Deceleration	A negative acceleration. Slowing down.
Acceleration unit	Metres per second per second or metres per second squared (m/s/s or m/s²)
For questions with two speeds	Use *u* for initial speed and *v* for final speed

Distance = speed × time   (s = v × t)

Acceleration = change in velocity ÷ time   (a = Δv ÷ t or a = (v - u) ÷ t)

Motion graphs

Distance time graph for a stationary object	Horizontal line
Distance-time graph for an object at a steady speed	Straight line sloping upwards
Distance-time graph gradient	Equals the speed
Velocity-time graph for an object at a steady speed	Horizontal line
Velocity-time graph for an accelerating object	Straight line sloping upwards
Velocity-time graph for a decelerating object	Straight line sloping downwards
Velocity-time graph gradient	Equals the acceleration

Terminal velocity

Terminal velocity	The maximum speed of a falling object
When an object accelerates	The force of air resistance increases
Terminal velocity is achieved when	The forces of weight and air resistance balance