

Mechanics Definitions

Learn them word for word: the highlighted words are the ones the examiner looks for.

1 Scalar	A scalar quantity has magnitude only .
2 Vector	A vector quantity has both magnitude and direction .
3 Resultant force	The resultant force is the single force that has the same effect as all the forces acting together .
4 Newton's First Law	An object will remain at rest or move with constant velocity unless acted upon by a resultant force .
5 Newton's Second Law	The resultant force acting on an object is equal to the rate of change of momentum of the object. (For constant mass: force is proportional to acceleration.)
6 Newton's Third Law	When two objects interact, if object A exerts a force on object B, then B exerts a force on A that is equal in magnitude and opposite in direction .
7 Momentum	Momentum is the product of mass and velocity .
8 Principle of conservation of momentum	The total momentum of a system remains constant provided that no external forces act on the system.
9 Impulse	Impulse is the change in momentum of an object.
10 Work done	Work done is the energy transferred when a force causes a displacement in the direction of the force .
11 Power	Rate of work done .
12 Moment of a force	The moment is the product of the force and the perpendicular distance from the pivot to the line of action of the force.
13 Principle of moments	For an object in equilibrium , the sum of the clockwise moments about a point equals the sum of the anticlockwise moments about that point.
14 Equilibrium	An object is in equilibrium when the resultant force is zero and the resultant moment is zero .
15 Centre of mass	The centre of mass is the single point at which the entire mass of an object may be considered to be concentrated for the purposes of motion .
16 Centre of gravity	The centre of gravity is the single point through which the resultant weight of an object acts .
17 GPE	Energy gained when an object with mass is raised above the ground.



Stick me by your desk.

Read me every time you sit down. Cover the right-hand column and say each one out loud. Practise online: [physicswithkate.com/a-level-mechanics-definitions](https://www.physicswithkate.com/a-level-mechanics-definitions)