



Technocrat Notes AQA AS Physics Definitions - Mechanics- Definitions

acceleration

change of velocity per unit time

acceleration of free fall

acceleration of an object acted on only by the force of gravity.

braking distance

the distance travelled by a vehicle in the time taken to stop it.

centre of mass

the centre of mass of a body is the point through which a single force on the body has no turning effect.

couple

pair of equal and opposite forces acting on a body but not along the same line.

displacement

distance in a given direction.

drag force

the force of fluid resistance on an object moving through the fluid.

equilibrium

state of an object when at rest or in uniform motion.

force

any interaction that can change the velocity of an object.

free body force diagram

a diagram of an object showing only the forces acting on the object.

friction

force opposing the motion of a surface that moves or tries to move across another surface.

kinetic energy

the energy of an object due to its motion.

linear

two quantities are said to have a linear relationship if the change of one quantity is proportional to the change of the other.

moment of a force about a point

force \times perpendicular distance from the line of action of the force to the point.

momentum

mass \times velocity.

motive force





the force that drives a vehicle.

Newton's first law of motion

an object remains at rest or in uniform motion unless acted on by a resultant force.

Newton's second law of motion

the rate of change of momentum of an object is proportional to the resultant force (F) on it. Newton's 2nd law may be written as $F = (\Delta mv)/\Delta t$. For constant mass, this equation becomes $F = ma$ where acceleration $a = (\Delta v/\Delta t)$

principle of moments

for an object in equilibrium, the sum of the clockwise moments about any point = the sum of the anticlockwise moments about that point.

projectile

a projected object in motion acted on only by the force of gravity.

scalar

a physical quantity with magnitude only.

speed

change of distance per unit time.

stopping distance

thinking distance + braking distance

terminal speed

the maximum speed reached by an object when the drag force on it is equal and opposite to the force causing the motion of the object.

thinking distance

the distance travelled by a vehicle in the time it takes the driver to react.

vector

a physical quantity with magnitude and direction.

velocity

change of displacement per unit time.

weight

the force of gravity acting on an object.

work

force \times distance moved in the direction of the force.

Impulse

The product of the force and the time which the force acts for. The impulse of the force is equal to change of momentum for the force.





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