OCR B Physics A Level

4.2.2 - Motion Laws

Flashcards

What is Newton's first law?

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A stationary body will remain at rest and a moving body will remain at constant speed, unless acted on by an external force.

State Newton's second law in words.

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The acceleration of an object is directly proportional to the force applied and inversely proportional to the object's mass.

What is the defining equation for Newton's second law?

What is the defining equation for Newton's second law?

Force = Mass x Acceleration

What is impulse?

What is impulse?

Impulse can be described as the change in momentum or as the product of force and the time over which it is applied.

What is Newton's third law?

What is Newton's third law?

Newton's third law states than every action has an equal and opposite reaction.

What is the law of the conservation of energy?

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The law of the conservation of energy states that energy can never be created or destroyed - it can only be transferred between different forms.

What is done when energy is transferred between different forms?

What is done when energy is transferred between different forms?

Work is done when energy is transferred between different forms.

State the equation used to calculate the work done by a force.

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Work Done = Force x Distance

What must be done before calculating the work done, if the force acts at an angle to the object's motion?

What must be done before calculating the work done, if the force acts at an angle to the object's motion?

The force must be resolved into components, and the component in the direction of motion should then be used.

State an equation linking work done and power.

State an equation linking work done and power.

Power = Work Done / Time

What must be done when dealing with projectile motion questions?

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You should consider the horizontal and vertical components of the projectile's motion separately.

What is the equation for kinetic energy?

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Kinetic Energy = ½ x Mass x (Velocity)^2

$$E_k = ½ \ x \ m \ x \ v^2$$

What is the equation for gravitational potential energy?

What is the equation for gravitational potential energy?

Gravitational Potential Energy = Mass x Gravitational Field Strength x Change in Height

$$\Delta E_p = m \times g \times \Delta h$$