

Edexcel Physics A-Level

Topic 6 - Further Mechanics

Flashcards

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What is impulse?



What is impulse?

Impulse is equal to the change of momentum.



State the equation used to calculate the impulse of a force acting over a time.



State the equation used to calculate the impulse of a force acting over a time.

$$\text{Impulse} = F\Delta t$$



If there a fixed change of momentum that must occur, how do you reduce the force that is exerted in the process?



If there a fixed change of momentum that must occur, how do you reduce the force that is exerted in the process?

Increase the length of time over which the change of momentum occurs.



What is the conservation of linear momentum?



What is the conservation of linear momentum?

The total momentum before an event must be equal to the total momentum after an event, assuming no external forces act.



State the conservation of linear momentum in equation form.



State the conservation of linear momentum in equation form.

$$m_1v_1 = m_2v_2$$



What is an elastic collision?



What is an elastic collision?

A collision in which kinetic energy is conserved.



Is energy conserved in an inelastic collision?



Is energy conserved in an inelastic collision?

Yes - energy is always conserved.

However, kinetic energy is not conserved in an inelastic collision - the energy is instead converted to other forms.



State the equation used to calculate angular velocity.



State the equation used to calculate angular velocity.

$$\omega = v/r$$

v is the linear velocity

r is the radius of the circular path



What is the time period of a circular orbit
with angular velocity ω ?



What is the time period of a circular orbit with angular velocity ω ?

$$T = 2\pi/\omega$$



What is required for an object to move with circular motion?



What is required for an object to move with circular motion?

A centripetal force.



In what direction does a centripetal force act?



In what direction does a centripetal force act?

Perpendicular to the direction of the object's motion, towards the centre of the circular path.



What equation is used to calculate a centripetal force?



What equation is used to calculate a centripetal force?

$$F = mv^2/r = mr\omega^2$$



What are radians a measure of?



What are radians a measure of?

Radians are a measure of angle.



How many radians form a full circle?



How many radians form a full circle?

2π radians.



What is the equation for the kinetic energy of a non-relativistic particle?



What is the equation for the kinetic energy of a non-relativistic particle?

$$E_{\text{kin}} = p^2/2m$$

