Revision Sheets

AQA GSCE Trilogy Physics Paper 2 Higher

Name: Class:

10 Minutes on....

Scalar and Vector Quantities

Key Term	Definition
Scalar Quantities	
Vector Quantities	

Describe how vector quantities can be represented.

Examples of Scalar Quantities	Examples of Vector Quantities

10 Minutes on....

Contact and Non-Contact Forces

Key Term	Definition
Scalar Quantities	
Vector Quantities	
Forces	
Contact Forces	
Non-Contact Forces	

Examples of Contact Force	Examples of Non-Contact Force

Describe how forces can be represented.

10 Minutes on....

Gravity 1

Key Term	Definition
Weight	

Quantity	Symbol	Unit
Weight		
Mass		
Gravitational Field Strength		

Identify the equation that links gravitational field strength, mass and weight.

Calculate weight when...	Gravitational field strength is 10N/kg and mass is 5kg.	Gravitational field strength is 9.8N/kg and mass is 25kg.	Gravitational field strength is 9.81N/kg and mass is 750g.	Gravitational field strength is 10N/kg and mass is 986g.
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Gravity 2

Calculate mass when...	Gravitational field strength is 10N/kg and weight is 30N.	Gravitational field strength is 9.8N/kg and weight is 45N.	Gravitational field strength is 9.8N/kg and weight is 2kN.	Gravitational field strength is 10N/kg and weight is 77N.
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

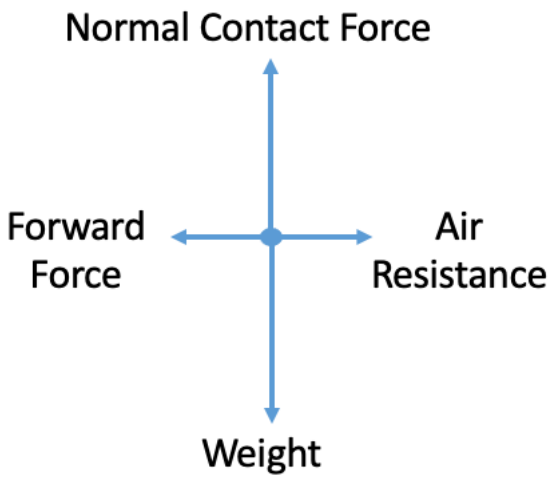
Calculate gfs when...	Weight is 700N and mass is 70kg.	Weight is 70N and mass is 650g.	Weight is 2kN and mass is 700kg.	Weight is 0.82kN and mass is 554g.
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Resultant Forces

Key Term	Definition
Resultant Force	

Explain how the diagram shows that the resultant force is 0.



Explain how to calculate the resultant of two forces that act in a straight line.

10 Minutes on....

Work Done 1

Key Term	Definition
Work	

Quantity	Symbol	Unit
Work Done		
Force		
Distance		

Identify the equation that links distance, force and work done.

Describe how to convert from joules into newton-metres.

Calculate work done when...	Force is 35N and the distance is 2m	Force is 72N and the distance is 1.5m	Force is 12N and the distance is 12cm	Force is 3.5kN and the distance is 30cm
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Work Done 2

Calculate force when...	Work done is 320J and the distance is 1.2m	Work done is 1.3kJ and the distance is 2.7m	Work done is 44J and the distance is 8cm	Work done is 2.4kJ and the distance is 98cm
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

Calculate distance when...	Work done is 25J and force is 18N	Work done is 55J and force is 22N	Work done is 2.7kJ and force is 700N	Work done is 92J and force is 0.1kN
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Forces and Elasticity 1

Key Term	Definition
Elastic Deformation	
Inelastic Deformation	

Quantity	Symbol	Unit
Spring Constant		
Force		
Extension		

Identify the equation that links extension, force and spring constant.

Calculate force when...	Spring constant is 3N/m and extension is 1.2m	Spring constant is 8.2N/m and extension is 3.1m	Spring constant is 0.4N/m and extension is 45cm	Spring constant is 7.2N/m and extension is 13cm
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Forces and Elasticity 2

Calculate spring constant when...	Force is 12N and extension is 2.3m	Force is 8.2N and extension is 50cm	Force is 1.9kN and extension is 5m	Force is 55N and extension is 25cm
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

Calculate extension when...	Force is 18N and spring constant is 4.5N/m	Force is 22N and spring constant is 9N/m	Force is 700N and spring constant is 6.2N/m	Force is 0.1kN and spring constant is 12N/m
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Forces and Extension RP

Construct a method to investigate the relationship between the force applied to a spring and its extension. Use the space below to draw a diagram of how equipment would be set up.

10 Minutes on....

Distance and Displacement

Key Term	Definition
Scalar Quantities	
Vector Quantities	
Distance	
Displacement	

Describe how how to determine the displacement of an object.

10 Minutes on....

Speed 1

Identify what can affect the speed at which a person runs/cycles

Quantity	Symbol	Unit
Distance		
Speed		
Time		

Example	Typical Value of Speed
Walking	
Running	
Cycling	
Sound in Air	

Identify the equation that links distance travelled, speed and time.

Calculate distance travelled when...	Speed is 3m/s and time is 3s	Speed is 0.8m/s and time is 15s	Speed is 2.2m/s and time is 1min	Speed is 3m/s and time is 2mins
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Speed 2

Calculate speed when...	The distance travelled in 10s is 25m	The distance travelled in 22s is 78m	The distance travelled in 2s is 32cm	The distance travelled in 10mins is 2km
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

Calculate time when...	Speed is 10m/s and the distance travelled is 2m	Speed is 1.5m/s and the distance travelled is 45cm	Speed is 4.2m/s and the distance travelled is 10m	Speed is 330m/s and the distance travelled is 33km
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Velocity

Key Term	Definition
Scalar Quantities	
Vector Quantities	
Velocity	
Acceleration	
Speed	

Explain how an object travelling in a circle can be accelerating while travelling at a constant speed.

10 Minutes on....

Distance-Time Relationship

Key Term	Definition
Distance-Time Graph	

Describe how the speed of an object can be calculated from a distance-time graph.

Create a sketch for how to represent the following on a distance time graph:

Stationary Object	Moving at a Constant Speed
Returning to Start at a Constant Speed	**Moving at a Faster Constant Speed**

10 Minutes on....

Acceleration 1

Key Term	Definition
Decelerating	

Quantity	Symbol	Unit
Acceleration		
Change in Velocity		
Time Taken		

Identify the equation that links acceleration, change in velocity and time taken

Calculate acceleration when...	Change in velocity is 12m/s over 3s	Change in velocity is 0.5m/s over 42ms	Change in velocity is 18m/s over 2.8s	Change in velocity is 17.1m/s over 1.2s
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Acceleration 2

Key Term	Definition
Velocity-Time Graph	

Describe how the distance travelled by an object can be calculated using a velocity – time graph. (HT)

Create a sketch for how to represent the following on a velocity time graph:

Stationary Object	Constant Acceleration
Constant Velocity	**Constant Deceleration**

10 Minutes on....

Acceleration 3

Key Term	Definition
Terminal Velocity	

Quantity	Symbol	Unit
Final Velocity		
Initial Velocity		
Acceleration		
Distance		

Identify the equation that links acceleration, distance, final velocity and intimal velocity.

Calculate acceleration when...	The initial velocity is 2m/s and the final velocity after 20m is 5m/s	The initial velocity is 7m/s and the final velocity after 10m is 5m/s	The initial velocity is 1m/s and the final velocity after 22m is 4m/s	The initial velocity is 5m/s and the final velocity after 1km is 15m/s
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Newtons 1st Law

Key Term	Definition
Newtons First Law	
Resultant Force	
Inertia (HT)	

Apply Newtons First Law to predict what will happen to the motion of an object when the resultant force is 0:

When stationary

When moving

10 Minutes on....

Newtons 2nd Law 1

Key Term	Definition
Newtons Second Law	

Quantity	Symbol	Unit
Resultant Force		
Mass		
Acceleration		

Identify the equation that links acceleration, mass and resultant force

Calculate resultant force when...	Mass is 37kg and acceleration is $2.2m/s^2$	Mass is 44kg and acceleration is $3.8m/s^2$	Mass is 751g and acceleration is $2.2m/s^2$	Mass is 5g and acceleration is $25m/s^2$
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Newtons 2nd Law 2

Calculate mass when...	The force is 25N and the acceleration is $2.2m/s^2$	The force is 18N and the acceleration is $3.8m/s^2$	The force is 1.8kN and the acceleration is $12m/s^2$	The force is 42.1N and the acceleration is $10.8m/s^2$
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

Calculate accelera-tion when...	Mass is 82.3kg and force is 100N	Mass is 7kg and force is 12N	Mass is 82g and force is 14N	Mass is 351g and force is 1.71kN
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Forces and Acceleration RP 1

Construct a method to investigate the effect of varying the force on the acceleration of an object. Use the space below to draw a diagram of how equipment would be set up.

10 Minutes on....

Forces and Acceleration RP 2

Construct a method to investigate the effect of varying the mass of an object on its acceleration. Use the space below to draw a diagram of how equipment would be set up.

10 Minutes on....

Newtons 3rd Law

Key Term	Definition
Newtons Third Law	

Interacting Objects	Forces
An object on a table.	
A car tyre on a road.	
The moon orbiting the earth.	
A hammer hitting a nail.	
A boat propeller in water.	
A child on pogo stick.	

10 Minutes on....

Stopping Distance

Key Term	Definition
Stopping Distance	
Thinking Distance	
Braking Distance	
Reaction Time	

Describe the relationship between speed of a vehicle and its braking distance.

10 Minutes on....

Reaction Time

Key Term	Definition
Thinking Distance	
Reaction Time	

Identify what a drivers reaction time can be affected by.

Method to Find Reaction Time	Computer	Ruler Drop
Description		
Advantages and Disadvantages		

10 Minutes on....

Factors Affecting Braking Distance 1

Factor That Affects Braking Distance	Explanation
Wet Road	
Icy Conditions on the Road	
Vehicles Brakes	
Vehicles Tyres	
More Mass In the Vehicle	

Explain how the distance required for road vehicles to stop in an emergency varies depending on speed.

10 Minutes on....

Factors Affecting Braking Distance 2

Explain, in terms of forces, how brakes work.

Explain the dangers caused by large decelerations.

10 Minutes on....

Momentum 1

Key Term	Definition
Momentum	

Quantity	Symbol	Unit
Momentum		
Mass		
Velocity		

Identify the equation that links mass, momentum and velocity.

Calculate momentum when...	Velocity is 3m/s and mass is 17kg	Velocity is 12.5m/s and mass is 82kg	Velocity is 0.3m/s and mass is 185g	Velocity is 8.1m/s and mass is 922g
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Momentum 2

Calculate velocity when...	Momentum is 12kgm/s and mass is 3kg	Momentum is 15kgm/s and mass is 2.8kg	Momentum is 2.1kgm/s and mass is 45g	Momentum is 1.2kgm/s and mass is 321g
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

Calculate mass when...	Momentum is 5kgm/s and velocity is 2.5m/s	Momentum is 8.1kgm/s and velocity is 3m/s	Momentum is 17.2kgm/s and velocity is 6.21m/s	Momentum is 11.1kgm/s and velocity is 2.5m/s
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Conservation of Momentum

Key Term	Definition
Conservation of Momentum	

Scenario	Explanation
A skater stands on ice and throws a bag to a friend. The skater moves backwards as he throws the bag forward.	
A car crashes into the back of a stationary car. They both move in the forwards direction together, with the car that crashed moving at a slower speed.	
A bowling ball hits a pin and slows down.	
A swimmer dives forwards from a boat. As they do the boat moves backwards.	
A skateboard moves backwards as the skateboards jumps forwards.	

10 Minutes on....

Transverse and Longitudinal Waves

Type of Wave	Diagram	Example
Transverse		
Longitudinal		

Describe the difference between transverse and longitudinal waves.

Explain how we can prove that when we see a water wave it is the wave moving and not the water itself.

10 Minutes on....

Properties of Waves 1

Key Term	Definition
Amplitude	
Wavelength	
Frequency	
Wave Speed	

Construct a labelled diagram of a transverse wave.

Quantity	Symbol	Unit
Period		
Frequency		
Wave Speed		
Wavelength		

Identify the equation that links frequency and period.

Identify the equation that links frequency, wavelength and waves peed.

10 Minutes on....

Waves RP 1

Construct a method to measure the frequency, wavelength and speed of waves in a ripple tank Use the space below to draw a diagram of how equipment would be set up.

10 Minutes on....

Waves RP 2

Construct a method to measure the frequency, wavelength and speed of waves in a solid. Use the space below to draw a diagram of how equipment would be set up.

10 Minutes on....

Properties of Waves 2

Calculate the period when...	The frequency is 12Hz.	The frequency is 225Hz	The frequency is 2kHz	The frequency is 3.1kHz
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

Calculate the frequency when...	The period is 2s	The period is 0.8s	The period is 55ms	The period is 41ms
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Do the Maths				
Round and add units.				

10 Minutes on....

Properties of Waves 3

Calculate the wave speed when...	The frequency is 12Hz and wavelength is 0.5m	The frequency is 17Hz and wavelength is 0.2m	The frequency is 35Hz and wavelength is 15cm	The frequency is 1.2kHz and wavelength is 2mm
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

Calculate the wavelength when...	Wave speed is 5m/s and frequency is 100Hz	Wave speed is 12m/s and frequency is 500Hz	Wave speed is 5m/s and frequency is 2.8kHz	Wave speed is 75m/s and frequency is 3.1kHz
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Do the Maths				
Round and add units.				

10 Minutes on....

Types of Electromagnetic Waves

Key Term	Definition
Electromagnetic Waves	

Describe how the waves in the electromagnetic spectrum are grouped.

Construct a diagram to model the electromagnetic spectrum.

10 Minutes on....

Properties of EM Waves 1

Key Term	Definition
Transmit	
Absorb	
Refract	

Construct a diagram to model the refraction of a wave at the boundary between two different medias.

Construct a wave front diagram to explain refraction.

10 Minutes on....

Infrared Radiation RP

Construct a method to investigate the amount of infrared radiation radiated by different surfaces. Use the space below to draw a diagram of how equipment would be set up.

10 Minutes on....

Properties of EM Waves 2

Key Term	Definition
Radiation Dose	

Describe how radio waves can induce oscillations in an electrical circuit.

Describe how gamma rays originate.

Describe the harm EM waves can cause.

Describe how to convert sieverts into millisievert.

Uses of EM Waves

10 Minutes on....

Electromagnetic Wave	Use	Why It is Suitable For This Use (HT Only)
Radio Wave		
Microwaves		
Infrared		
Visible Light		
Ultraviolet		
X-Rays and Gamma Rays		

10 Minutes on....

Poles Of A Magnet

Key Term	Definition
Magnet Poles	
Permanent Magnet	
Induced Magnet	

Describe what happens when two magnetic poles are brought together.

Compare permanent and induced magnets.

10 Minutes on....

Magnetic Field

Key Term	Definition
Magnetic Field	

Describe what the strength of a magnetic field depends on.

Construct a diagram to show the magnetic field lines around a bar magnet.

Describe a method using a compass to plot the magnetic field lines around a bar magnet.

10 Minutes on....

Electromagnetism

Key Term	Definition
Solenoid	
Electromagnet	

Describe how a magnetic field is produced and how its strength can be increased.

Draw the magnetic field for a straight wire.

Draw the magnetic field for a solenoid.

10 Minutes on....

Fleming's Left Hand Rule 1

Key Term	Definition
Motor Effect	

Describe when the force on a piece of wire in a magnetic field increases.

Summarise what Flemings Left Hand Rule is.

10 Minutes on....

Fleming's Left Hand Rule 2

Quantity	Symbol	Unit
Force		
Magnetic Flux Density		
Current		
Length		

Identify the equation that links current, force, length and magnetic flux density

Calculate force when..	Magnetic flux density is 2T, current is 3A and length is 1.5m	Magnetic flux density is 10T, current is 5A and length is 30cm	Magnetic flux density is 1.5T, current is 300mA and length is 10cm	Magnetic flux density is 2T, current is 2.5A and length is 45cm
Convert Units				
Write down the formula.				
Substitute Values				
Do the Maths				
Round and add units.				

10 Minutes on....

Fleming's Left Hand Rule 3

For each of the questions below the magnetic is a small magnetic with a magnetic flux density of 0.01T

Calculate current when...	The force on a 1m wire is 10N	The force on a 10cm wire is 0.5N	The force on a 25cm wire is 0.82N	The force on a 1km wire is 1.2kN
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

Calculate length when...	The current is 10A and the force is 2N	The current is 950mA and the force is 0.02N	The current is 25A and the force is 1.5N	The current is 50A and the force is 2.8N
Convert Units				
Write down the formula.				
Substitute Values				
Rearrange				
Answer				
Round and add units.				

10 Minutes on....

Electric Motors

Key Term	Definition
Electric Motor	

Construct a diagram to model a simple electric motor

Explain how the force on a conductor in a magnetic field causes the rotation of the coil in an electric motor.