Edexcel GCSE Physics
Topics 2.1-2.13 - Describing Motion

Flashcards

What is a scalar quantity?

What is a scalar quantity?

- A quantity that only has a magnitude
  - A quantity that isn't direction dependent

What is a vector quantity?

What is a vector quantity?

A quantity that has both a magnitude and an associated direction.

How can a vector quantity be represented?

How can a vector quantity be drawn and what does it show?

Using vector arrows.

How do vector arrows represent vectors?

How do vector arrows represent vectors?

- The length of the arrow represents the magnitude
- The arrow points in the associated direction

Give three examples of vector quantities.

Give three examples of vector quantities.

1. Velocity

2. Displacement

3. Force

Give examples of scalar quantities.

Give examples of scalar quantities.

- Temperature
- Time
- Mass
- Speed
- Distance
- Energy

What is velocity?

What is velocity?

The speed of an object in a specific direction.

Give an equation relating average speed, distance and time.

Give an equation relating average speed, distance and time.

average speed = distance / time

On a distance/time graph, what value does the gradient of the line represent?

On a distance/time graph, what value does the gradient of the line represent?

The speed.

On a displacement/time graph, what value does the gradient of the line represent?

On a displacement/time graph, what value does the gradient of the line represent?

The velocity.

What must be done to calculate speed at a given time from a distance-time graph for an accelerating object?

What must be done to calculate speed at a given time from a distance-time graph for an accelerating object?

- Draw a tangent to the curve at the required time

- Calculate the gradient of the tangent

State the equation for the average acceleration of an object. Give appropriate units.

State the equation for the average acceleration of an object. Give appropriate units.

Acceleration = (Change in Velocity)/(Time Taken)

Acceleration (m/s²), Velocity (m/s), Time (s)

Give an equation relating final velocity with initial velocity, displacement and acceleration.

Give an equation relating final velocity with initial velocity, displacement and acceleration.

$$v^2 = u^2 + 2as$$

How can the distance travelled by an object be calculated from a velocity-time graph?

How can the distance travelled by an object be calculated from a velocity-time graph?

It is equal to the area under the graph.

On a velocity/time graph what does the gradient of the graph represent?

On a velocity/time graph what does the gradient of the graph represent?

The acceleration.

State a typical value for the speed of sound.

State a typical value for the speed of sound.

330 m/s

What is a typical value for human walking speed?

What is a typical value for human walking speed?

1.5 m/s

What is a typical value for human running speed?

What is a typical value for human running speed?

3 m/s

What is a typical value for human cycling speed?

What is a typical value for human cycling speed?

6 m/s

Give an approximate value for the acceleration of an object in free fall under gravity near the Earth's surface.

Give an approximate value for the acceleration of an object in free fall under gravity near the Earth's surface.

10 m/s²