

Unit 1: Motion



Unit 1: Motion Conclusion

1. Formulae:

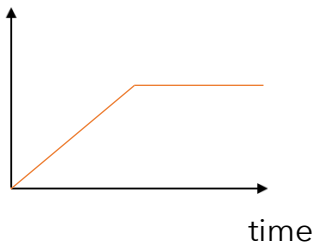
1) Displacement = S

2) Velocity = $v = \frac{\Delta S}{\Delta t}$

3) Acceleration = $a = \frac{\Delta V}{\Delta t}$

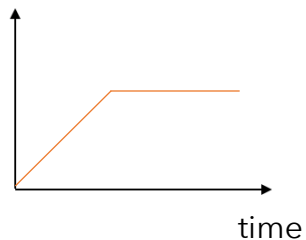
2. Graphs:

Distance



1. Gradient = velocity

Velocity

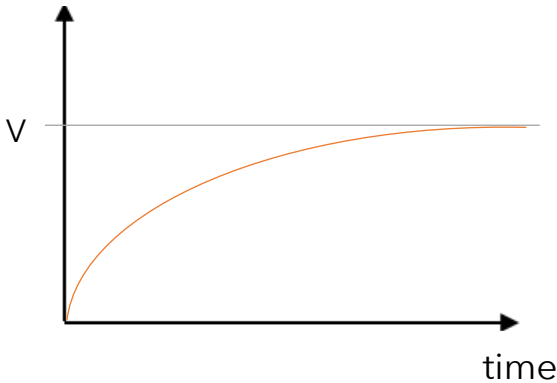


1. Gradient = acceleration
2. Area under graph = distance

3.Freefall:

Case 1: with air resistance

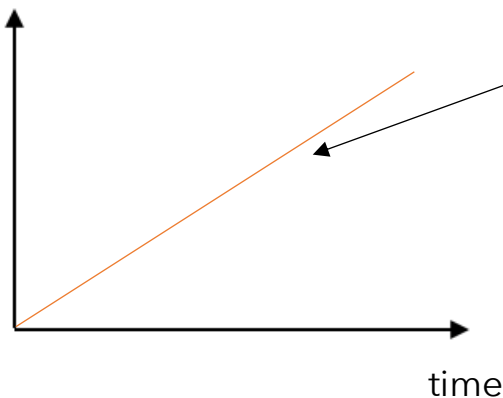
velocity



V = Terminal velocity
(maximum velocity)

Case 2: no air resistance
(constant acceleration)

velocity



Gradient = g (10 m/s^2)

Definitions:

Motion (Unit 1):

1. **Scalar** = quantity that has only magnitude
2. **Vector** = quantity that has both magnitude and direction
3. **Speed** = rate of change of in distance
4. **Velocity** = rate of change in displacement
5. **Acceleration** = rate of change in velocity



Describe/Explanations:

When exam tell you to describe motion or state direction of force, these are all possible answers.

Describe motions:

1. stationary
2. constant - velocity or acceleration
3. decreasing/increasing - velocity or acceleration
4. change direction

Direction of force:

1. Centripetal - towards centre of the motion
2. (vertically) downwards/ upwards
3. e.g. 12 degree from (force A)

When exam tell you to compare graphs, these are all possible answers.

Compare graph:

1. Less/greater gradient in 1st section
2. longer total time
3. longer time to top speed

Additional questions of graph:

How graph show same value of acceleration and deceleration:

Same gradient