

Newton's Laws & Weight

Question Paper 3

Level	Edexcel
Subject	Physics
Exam Board	GCSE(9-1)
Topic	Motions and Forces
Sub Topic	Newton's Laws & Weight
Booklet	Question Paper 3

Time Allowed: 28 minutes

Score: /23

Percentage: /100

1 (a) A car driver sees a rabbit on the road.

The driver makes an emergency stop after he sees the rabbit.

Figure 6 shows the speed of the car from the time the driver sees the rabbit until the car stops.

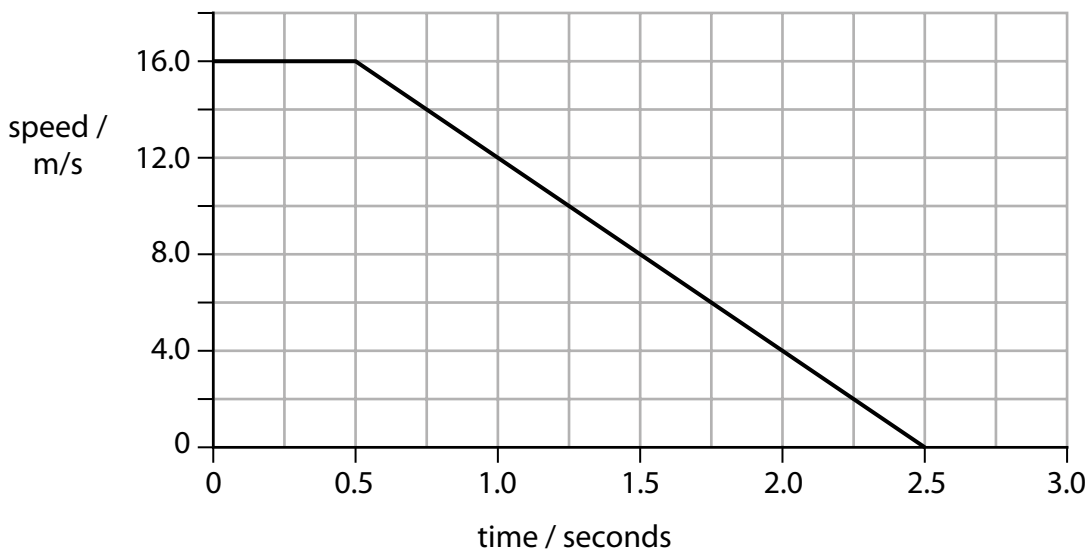


Figure 6

(i) The distance travelled by the car from the time the driver first sees the rabbit to when car starts to slow down is the

(1)

- A average distance
- B braking distance
- C stopping distance
- D thinking distance

(ii) Calculate the distance that the car travels in the first 0.5 seconds.

(3)

distance = m

(iii) Which equation relates acceleration to change in velocity and time?

(1)

A $a = \frac{(v - u)}{t}$

B $a = \frac{t}{(v - u)}$

C $a = t(v - u)$

D $a = v - \frac{u}{t}$

(iv) Calculate the deceleration of the car.

(3)

deceleration = m/s²

(b) Two students, Alice and Bob, carry out an experiment to measure the speed of cars.

Alice paces out the distance between two lamp posts.

She records:

'Distance between lamp posts = 20 paces'

Bob starts to count when a car passes the first lamp post. He stops counting when he thinks it has passed the second lamp post.

He records:

'My estimate for the time taken for the car to pass between the two lamp posts = 3'

Give **three** ways the students could improve their experimental procedure.

(3)

1

2

3

(Total for Question = 11 marks)

2 A car accelerates at a constant rate of 1.83 m/s^2 along a flat straight road.

(a) The force acting on the car is 1.870 kN .

Calculate the mass of the car.

Give your answer to three significant figures.

(3)

mass = kg

(b) The car accelerates from rest for 16 s .

Calculate the speed of the car after 16 s .

(3)

speed = m/s

