IGCSE · Cambridge (CIE) · Maths

34 mins 11 questions

Non-Calculator Questions

Real-Life Graphs

Conversion Graphs / Distance-Time Graphs / Speed-Time Graphs / Rates-of-Change Graphs

Medium (4 questions)	/9
Hard (4 questions)	/12
Very Hard (3 questions)	/13
Total Marks	**/34**

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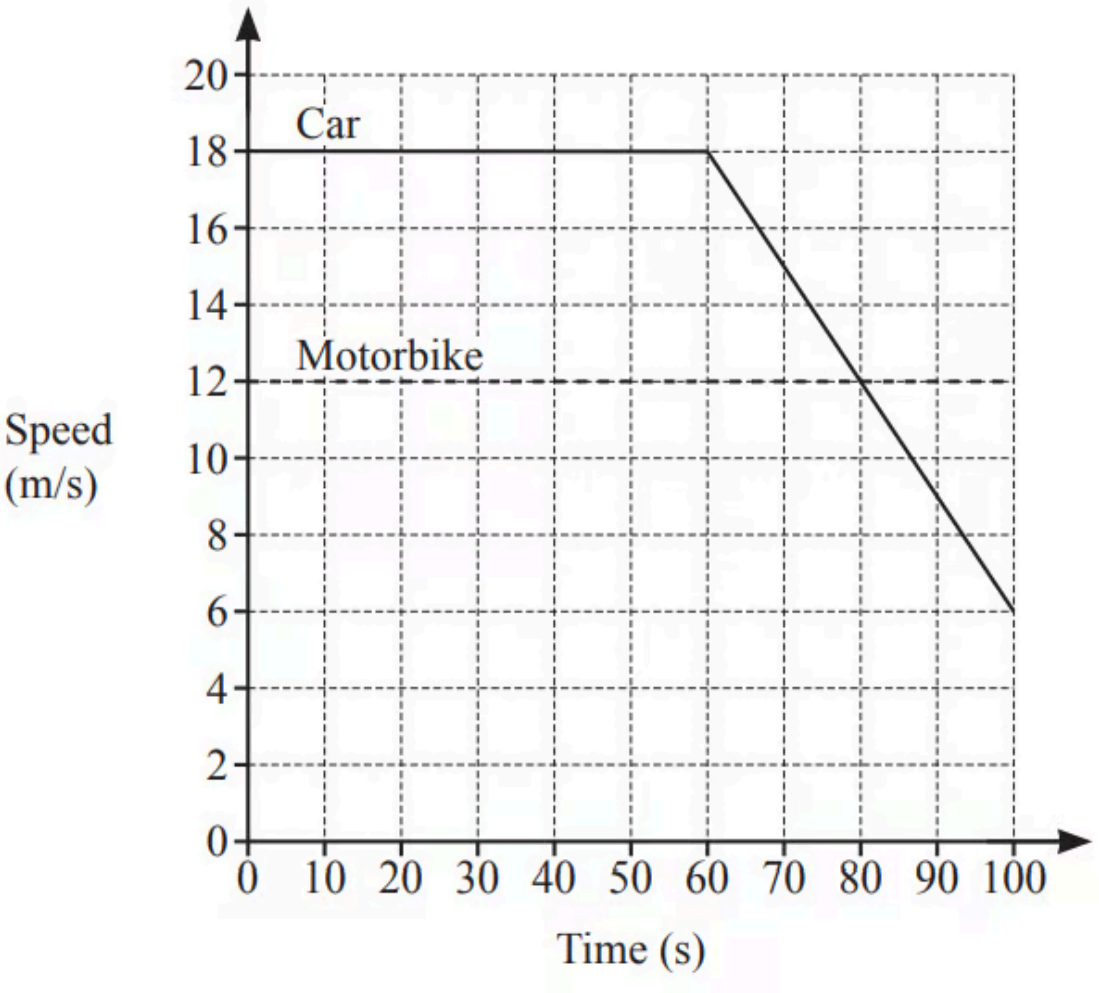
Medium Questions

1



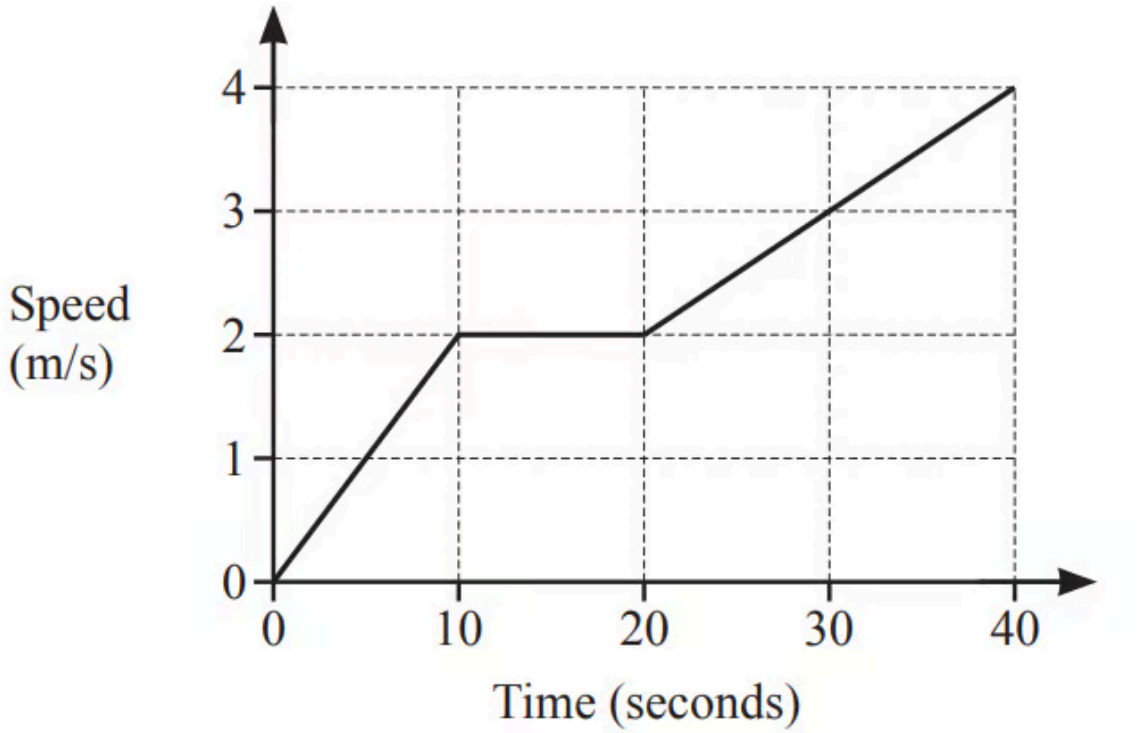
The diagram shows the speed–time graph for 100 seconds of the journey of a car and of a motorbike.

Find the deceleration of the car between 60 and 100 seconds.

..... m/s^2

(1 mark)

2



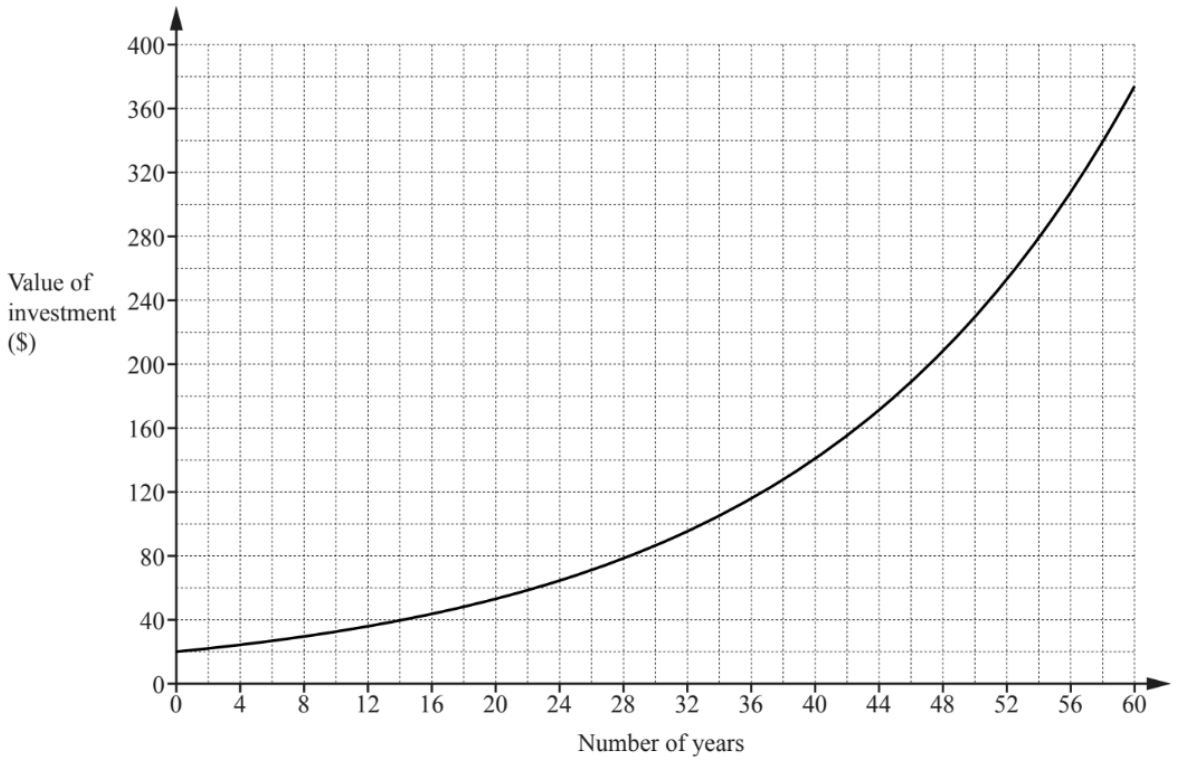
The diagram shows the speed–time graph for the first 40 seconds of a cycle ride.

Find the acceleration between 20 and 40 seconds.

..... m/s^2

(1 mark)

3



When Heidi was born, her grandfather invested some money in an account that paid compound interest.
The graph shows the exponential growth of this investment.

i) Use the graph to find the original amount of money invested,

$ ..... [1]

ii) Use the graph to find the number of years it took for the original amount to double,

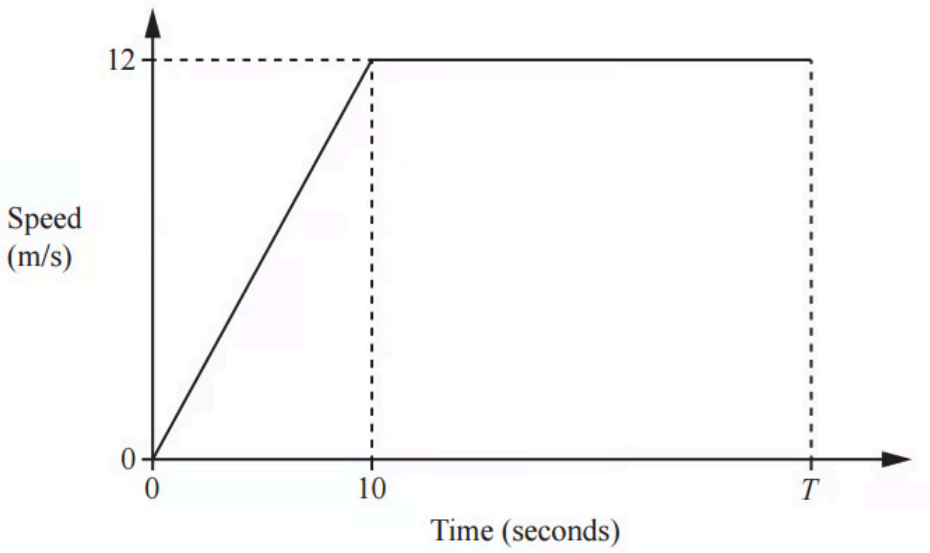
..... years [1]

iii)Use the graph to find the value of the investment after 54 years.

$ ..... [1]

(3 marks)

4 (a)



The diagram shows the speed–time graph for the first T seconds of a car journey. Find the acceleration during the first 10 seconds.

..... m/s^2

(1 mark)

(b) The total distance travelled during the T seconds is 480 m.

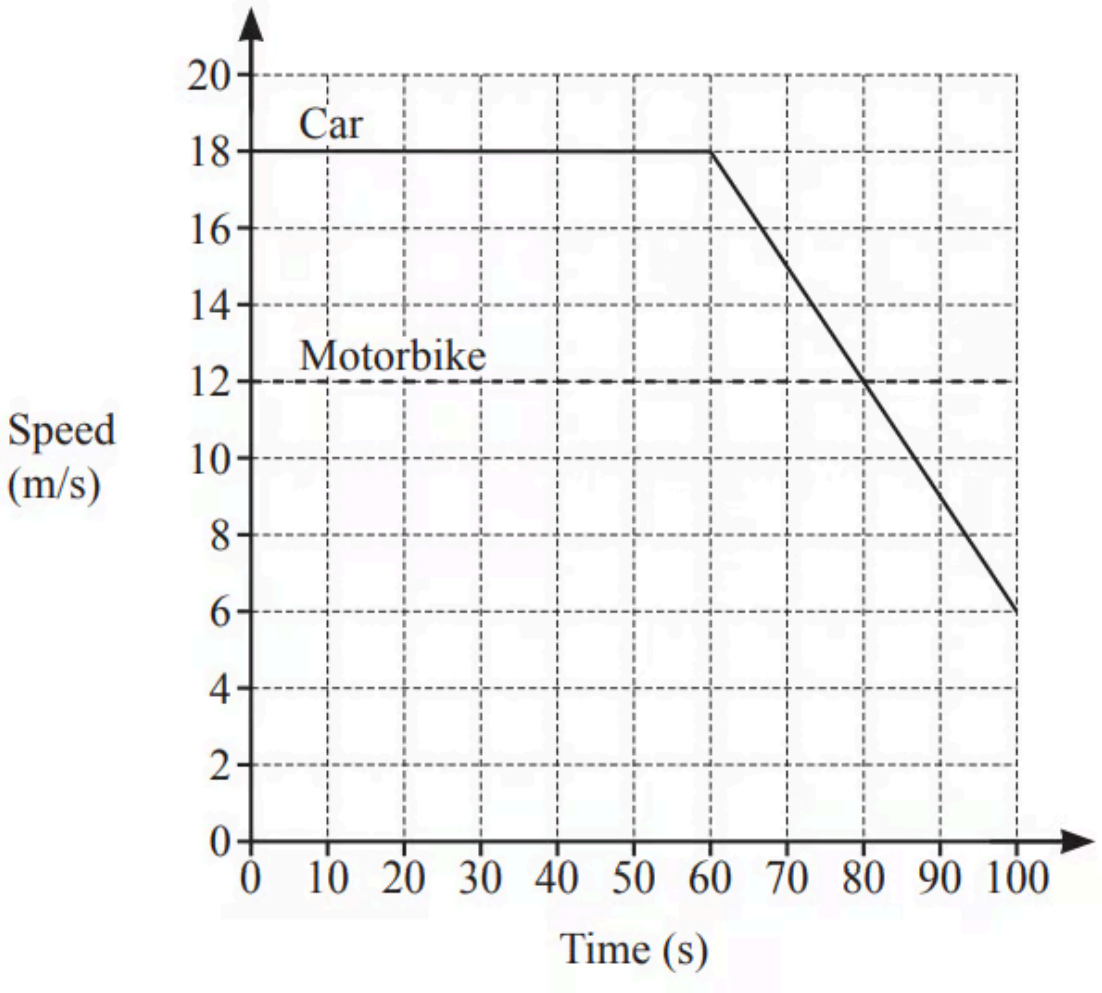
Find the value of T.

T = ...

(3 marks)

Hard Questions

1



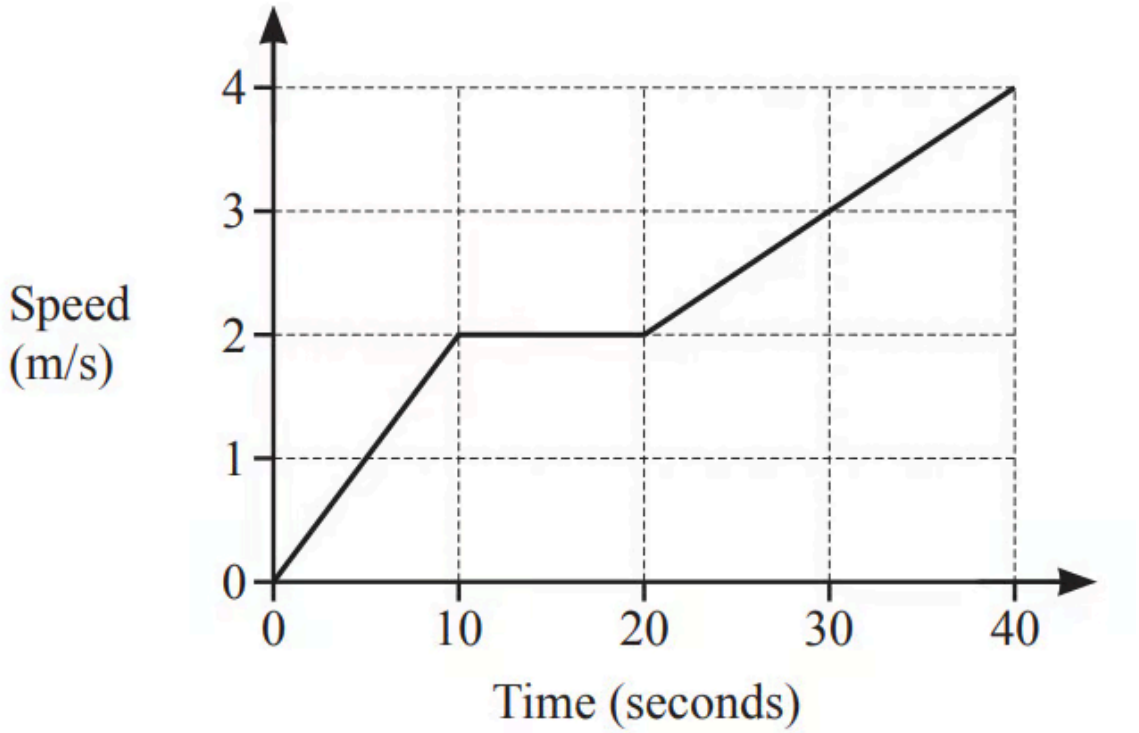
The diagram shows the speed–time graph for 100 seconds of the journey of a car and of a motorbike.

Calculate how much further the car travelled than the motorbike during the 100 seconds.

..... m

(3 marks)

2



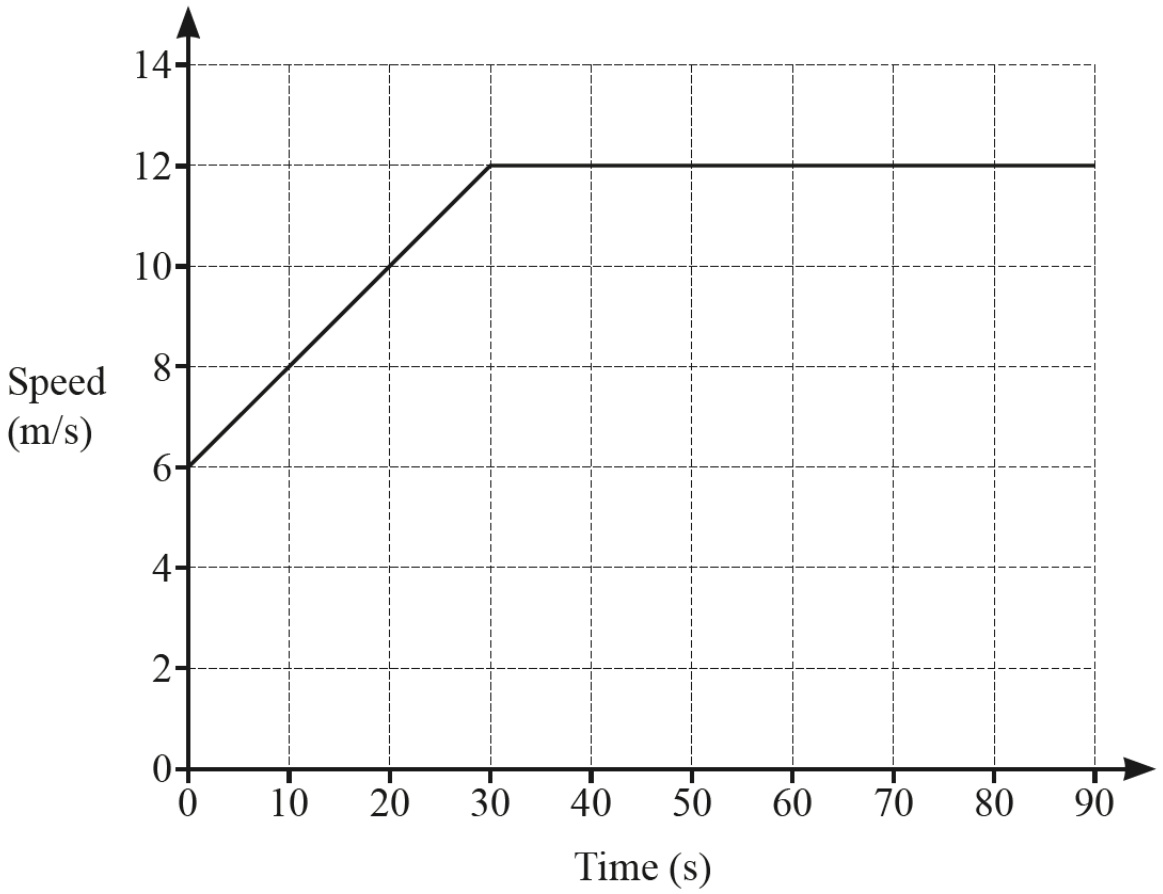
The diagram shows the speed–time graph for the first 40 seconds of a cycle ride.

Find the total distance travelled.

..... m

(3 marks)

3



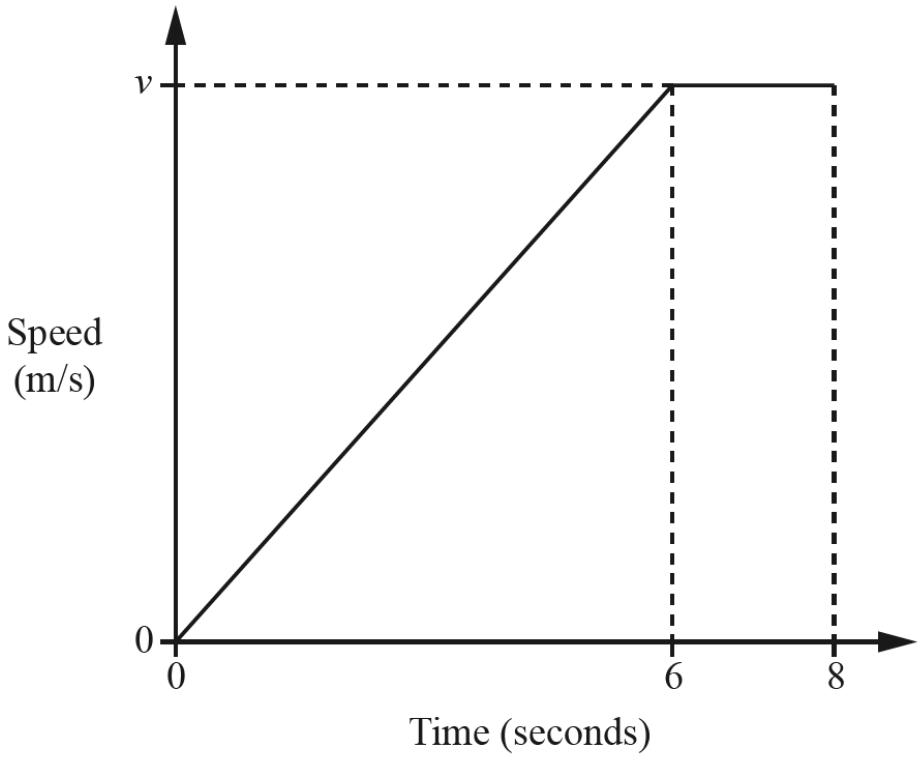
The diagram shows the speed–time graph for 90 seconds of a journey.

Calculate the total distance travelled during the 90 seconds.

..... m

(3 marks)

4 The diagram shows information about the first 8 seconds of a car journey.



The car travels with constant acceleration reaching a speed of v m/s after 6 seconds.

The car then travels at a constant speed of v m/s for a further 2 seconds.

The car travels a total distance of 150 metres.

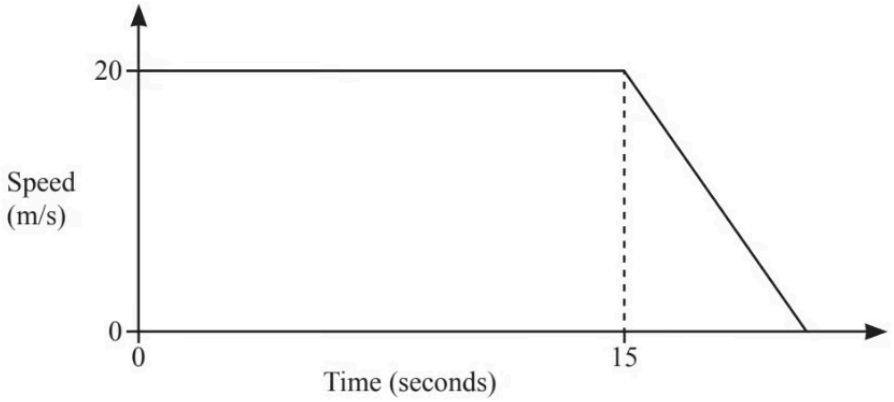
Work out the value of v.

$v =$ .....

(3 marks)

Very Hard Questions

1



A car travels at 20 m/s for 15 seconds before it comes to rest by decelerating at 2.5 m/s^2.

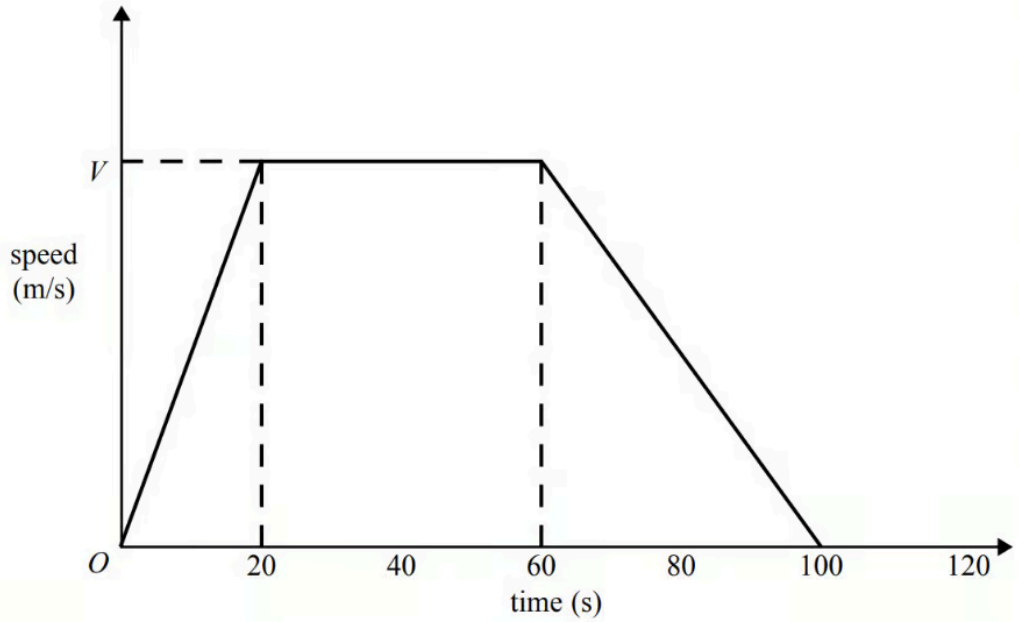
Find the total distance travelled.

..... m

(5 marks)

2 (a) Here is a speed-time graph for a car journey.

The journey took 100 seconds.



The car travelled 1.75km in the 100 seconds.

Work out the value of *V*.

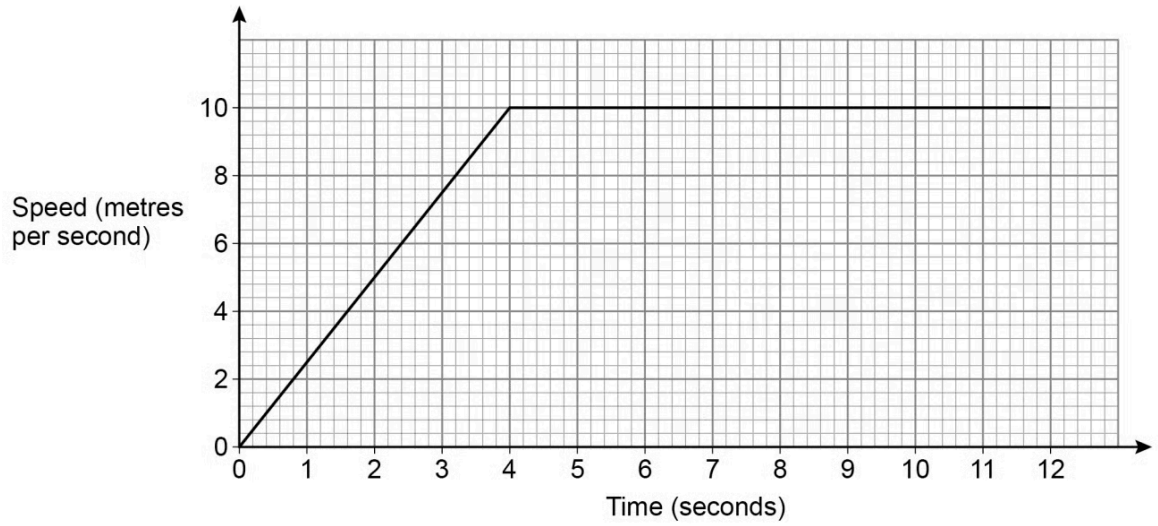
(3 marks)

(b) Describe the acceleration of the car for each part of this journey

(2 marks)

3 A horse runs in a field.

The speed-time graph represents the first 12 seconds of the run.



After how many seconds had the horse run a distance of 75 metres?

.....seconds

(3 marks)