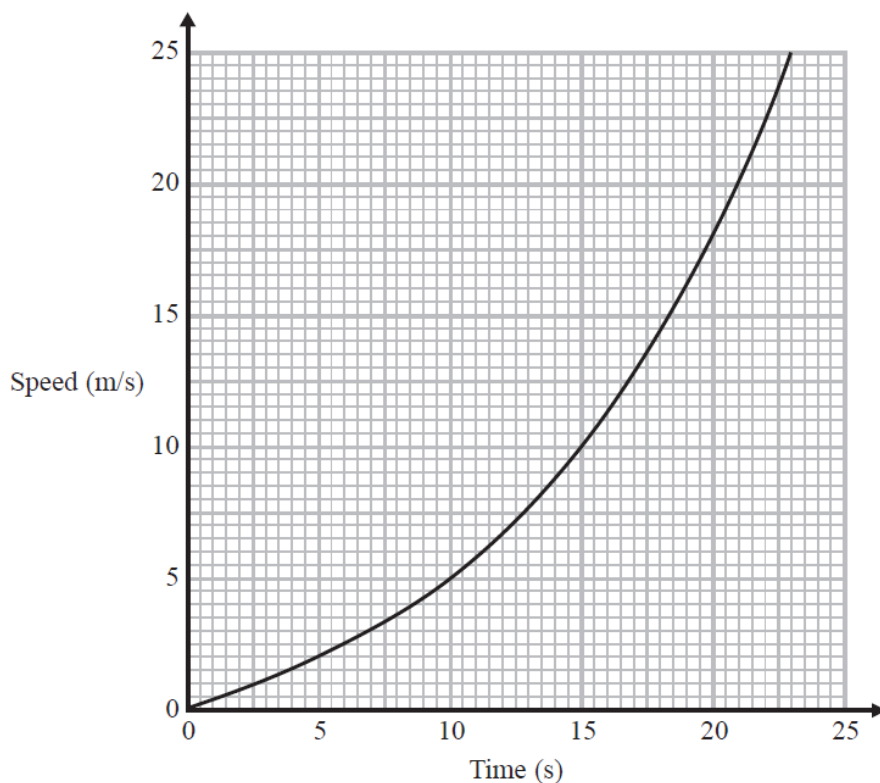


1 Here is a speed-time graph for a train.



- (a) Work out an estimate for the distance the train travelled in the first 20 seconds.
Use 4 strips of equal width.

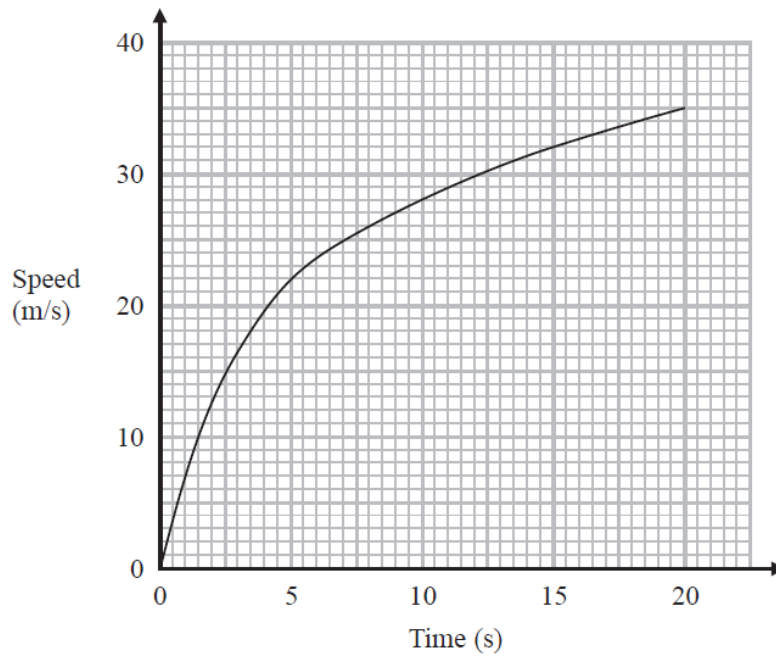
..... m
(3)

- (b) Is your answer to (a) an underestimate or an overestimate of the actual distance the train travelled?
Give a reason for your answer.

.....
.....
(1)

(Total for Question is 4 marks)

- 2 The graph shows the speed of a car, in metres per second, during the first 20 seconds of a journey.

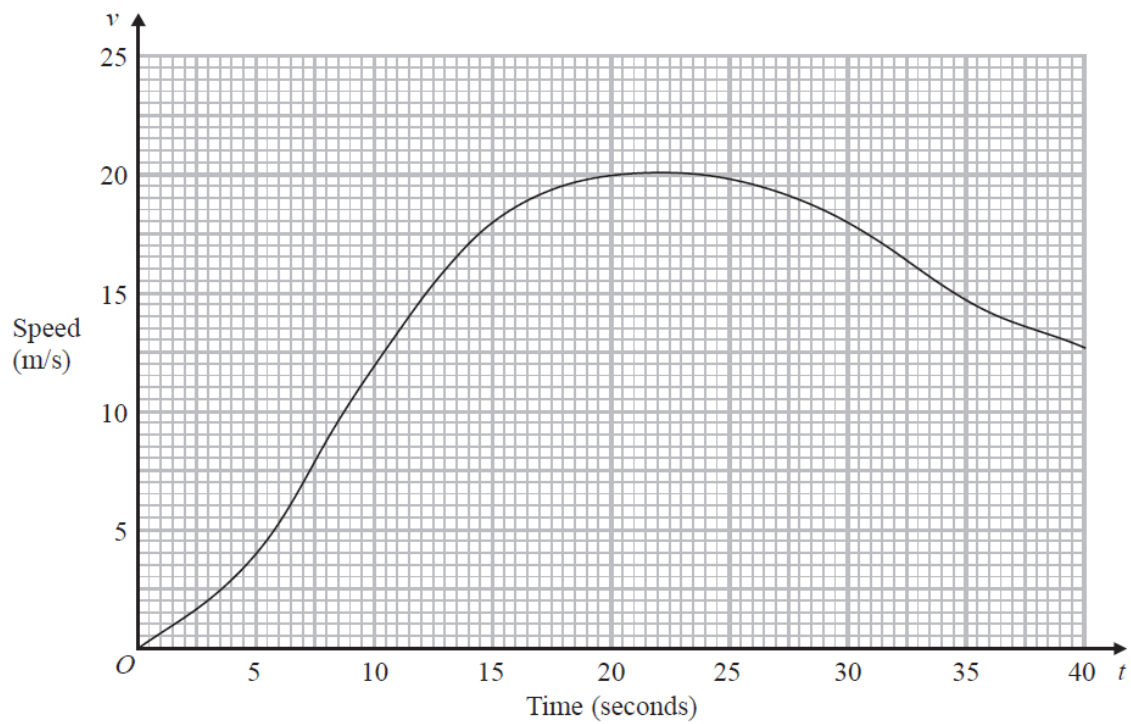


- (a) Work out an estimate for the distance the car travelled in the first 20 seconds.
Use 4 strips of equal width.

..... metres
(3)

- 3 A car moves from rest.

The graph gives information about the speed, v metres per second, of the car t seconds after it starts to move.



- (a) (i) Calculate an estimate of the gradient of the graph at $t = 15$

.....
(3)

- (ii) Describe what your answer to part (i) represents.

.....
(1)

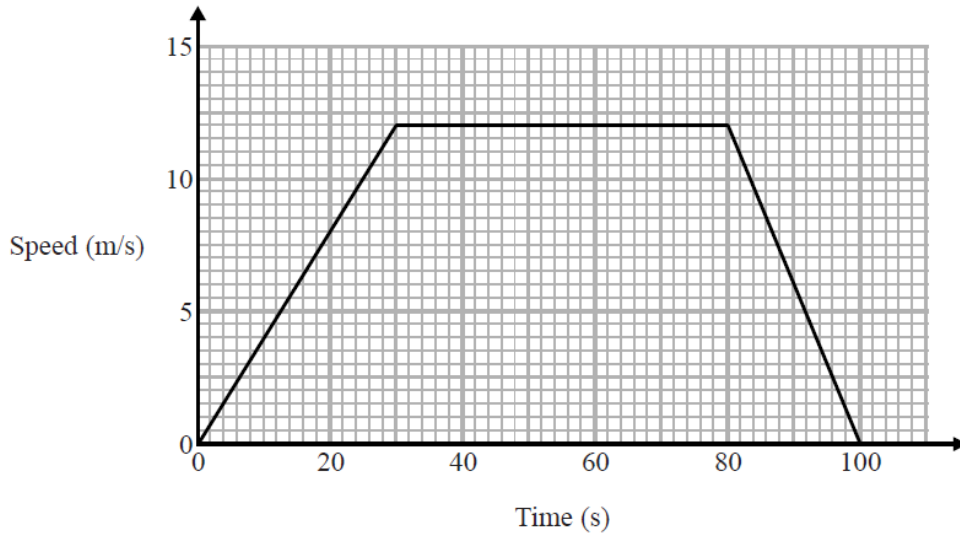
- (b) Work out an estimate for the distance the car travels in the first 20 seconds of its journey.
Use 4 strips of equal width.

.....m

(3)

(Total for Question is 7 marks)

- 4 Here is a speed-time graph for a train journey between two stations.
The journey took 100 seconds.



- (a) Calculate the time taken by the train to travel half the distance between the two stations.
You must show all your working.

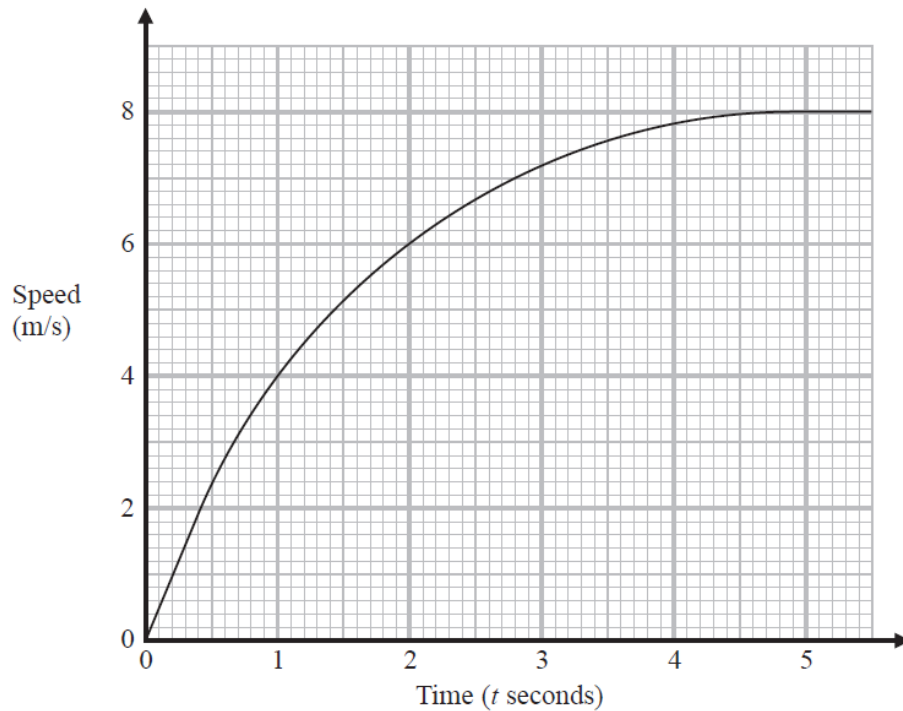
..... seconds
(4)

- (b) Compare the acceleration of the train during the first part of its journey with the acceleration of the train during the last part of its journey.

.....
.....
.....
(1)

(Total for Question is 5 marks)

- 5 Here is a speed-time graph showing the speed, in metres per second, of an object t seconds after it started to move from rest.



- (a) Using 3 trapeziums of equal width, work out an estimate for the area under the graph between $t = 1$ and $t = 4$

.....
(3)

- (b) What does this area represent?

.....
(1)

(Total for Question is 4 marks)