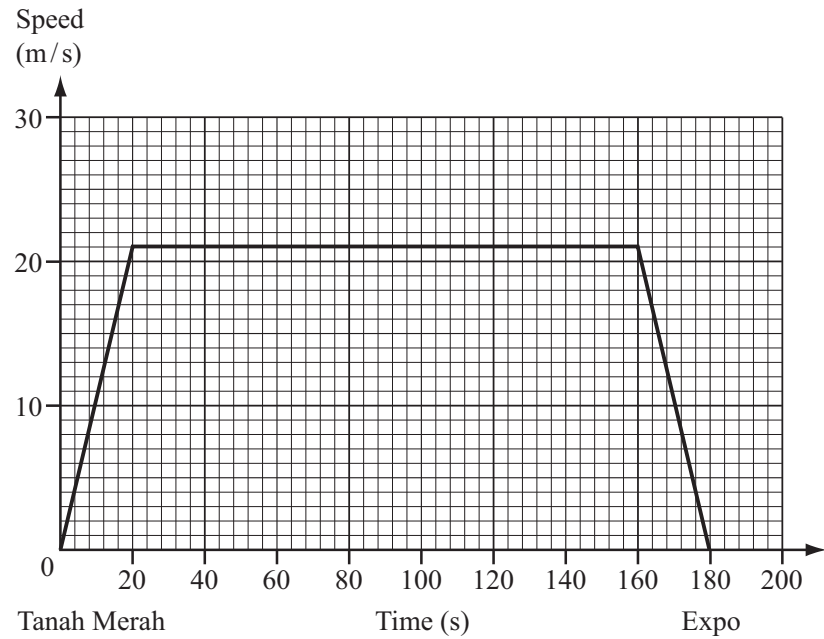


Dist Speed Time 1

1)



The graph shows the train journey between Tanah Merah and Expo in Singapore.

Work out

- (a) the acceleration of the train when it leaves Tanah Merah,

Answer(a)

m/s^2 [2]

- (b) the distance between Tanah Merah and Expo,

Answer(b)

m [3]

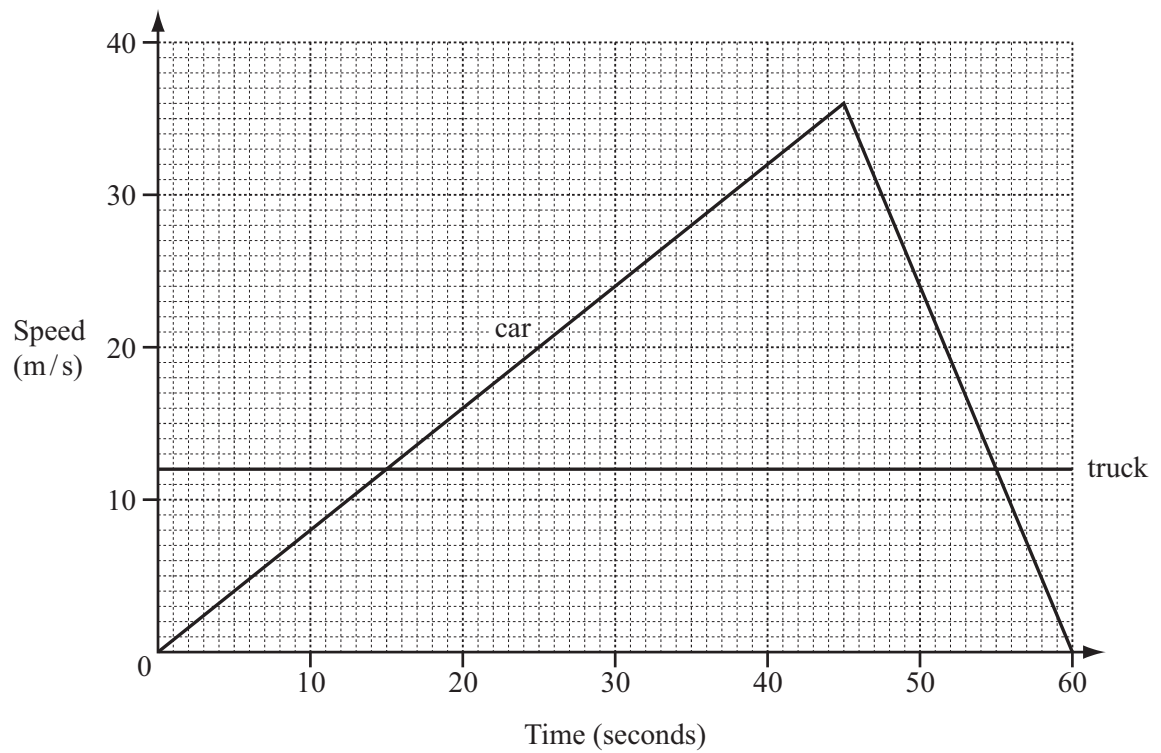
- (c) the average speed of the train for the journey.

Answer(c)

m/s [1]

Dist Speed Time 1

2)



The graph shows the speed of a truck and a car over 60 seconds.

(a) Calculate the acceleration of the car over the first 45 seconds.

Answer(a) m/s^2 [2]

(b) Calculate the distance travelled by the car while it was travelling faster than the truck.

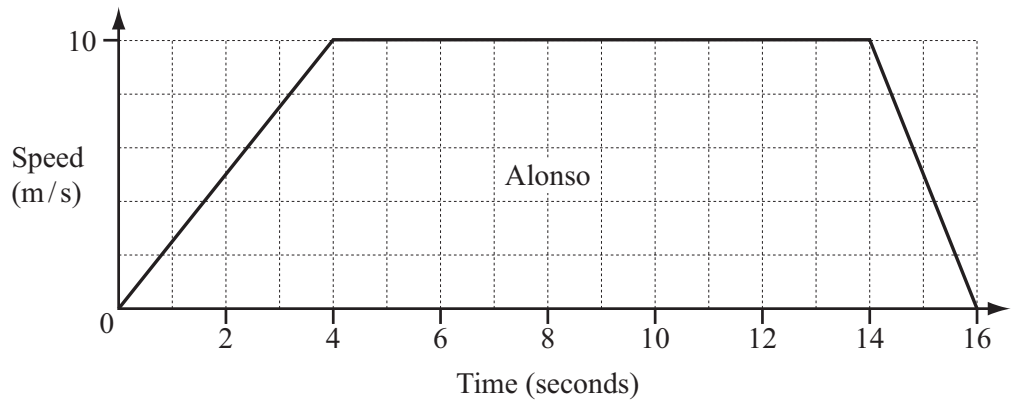
Answer(b) , m [3]

Dist Speed Time 1

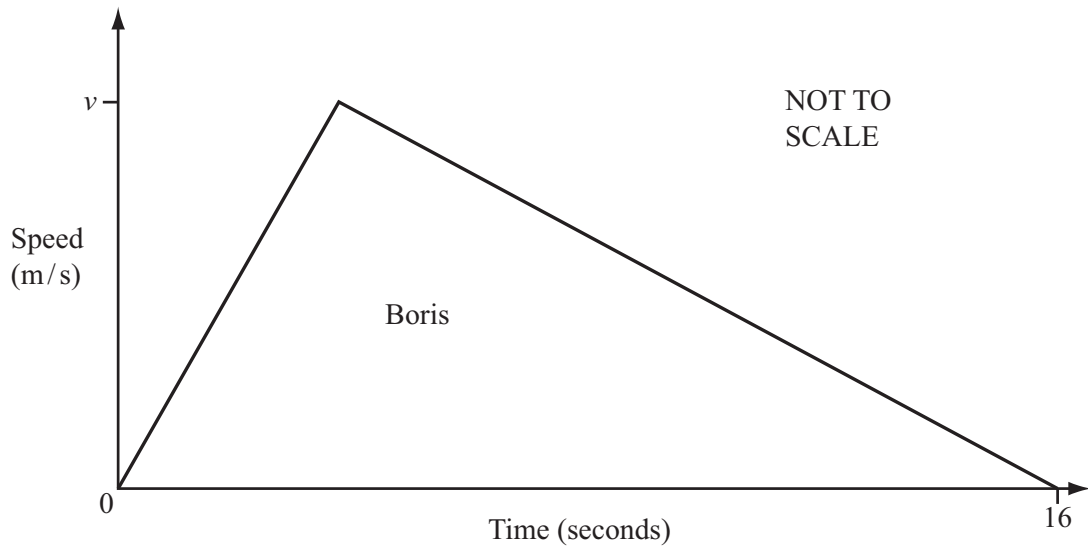
3)

The graphs show the speeds of two cyclists, Alonso and Boris.

Alonso accelerated to 10 m/s, travelled at a steady speed and then slowed to a stop.



Boris accelerated to his maximum speed, v m/s, and then slowed to a stop.



Both cyclists travelled the same distance in the 16 seconds.

Calculate the maximum speed for Boris.
Show all your working.

Answer

m/s [5]

Dist Speed Time 1

4)

The braking distance, d metres, for Alex's car travelling at v km/h is given by the formula

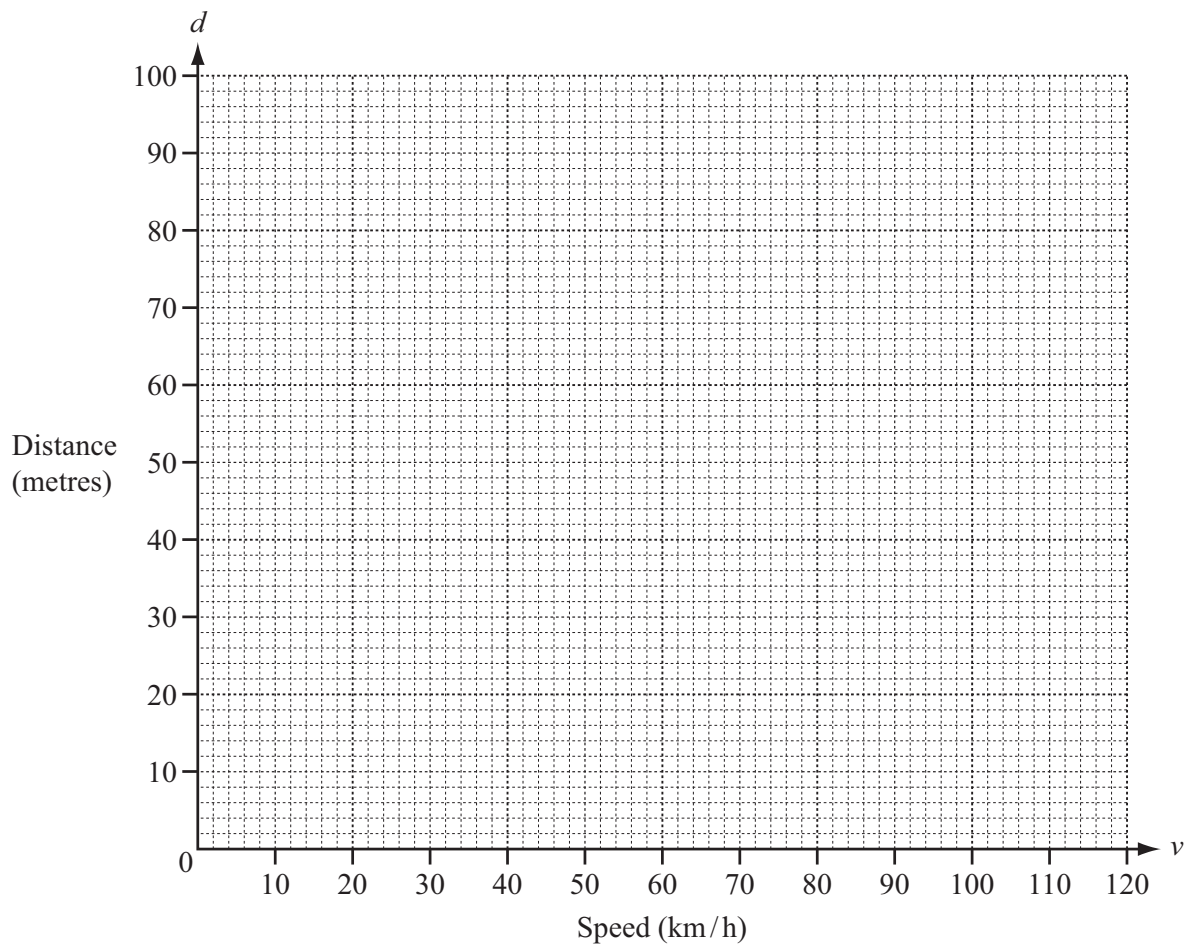
$$200d = v(v + 40).$$

(a) Calculate the missing values in the table.

v (km/h)	0	20	40	60	80	100	120
d (metres)	0		16		48		96

[2]

(b) On the grid below, draw the graph of $200d = v(v + 40)$ for $0 \leq v \leq 120$.



[3]

(c) Find the braking distance when the car is travelling at 110 km/h.

Answer(c)

m [1]

(d) Find the speed of the car when the braking distance is 80 m.

Answer(d)

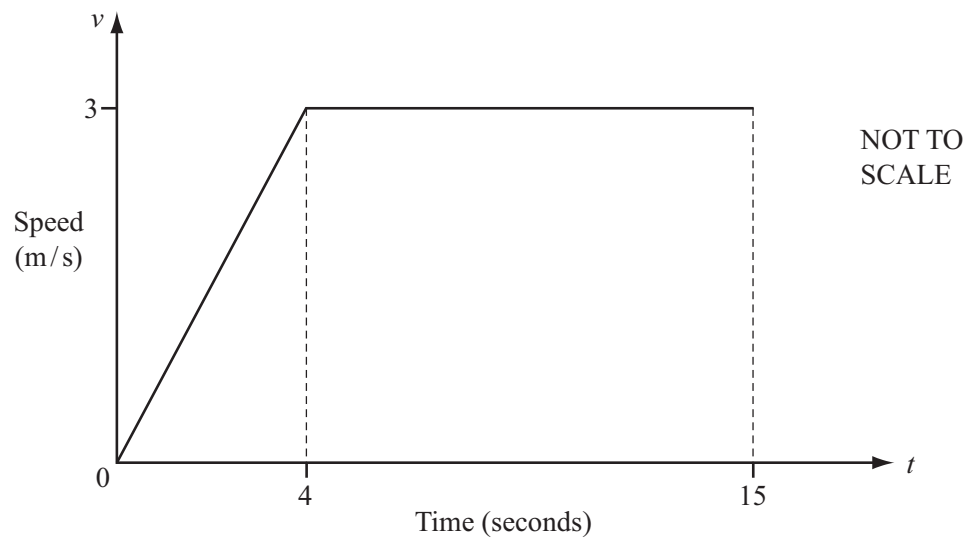
km/h [1]

Dist Speed Time 1

- 5) The maximum speed of a car is 252 km/h.
Change this speed into metres per second.

Answer _____, m/s [2]

6)



The diagram shows the speed-time graph for 15 seconds of the journey of a cyclist.

- (a) Calculate the acceleration of the cyclist during the first 4 seconds.

Answer(a) _____, m/s² [1]

- (b) Calculate the average speed for the first 15 seconds.

Answer(b) _____ m/s [3]

Dist Speed Time 1

7) A train leaves Barcelona at 21 28 and takes 10 hours and 33 minutes to reach Paris.

(a) Calculate the time the next day when the train arrives in Paris.

Answer(a)

[1]

(b) The distance from Barcelona to Paris is 827 km.

Calculate the average speed of the train in kilometres per hour.

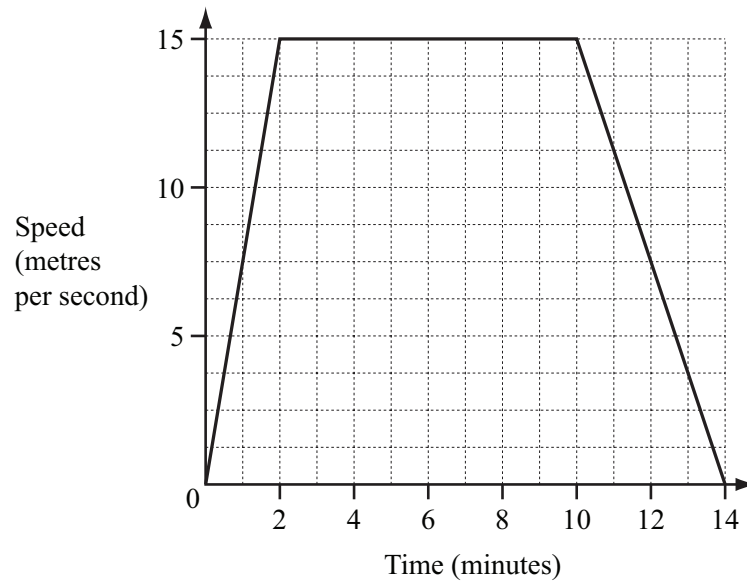
Answer(b)

km/h [3]

Dist Speed Time 1

11

8)



The diagram shows the speed-time graph of a train journey between two stations.
The train accelerates for two minutes, travels at a constant maximum speed, then slows to a stop.

- (a) Write down the number of **seconds** that the train travels at its constant maximum speed.

Answer(a)

s [1]

- (b) Calculate the distance between the two stations **in metres**.

Answer(b)

m [3]

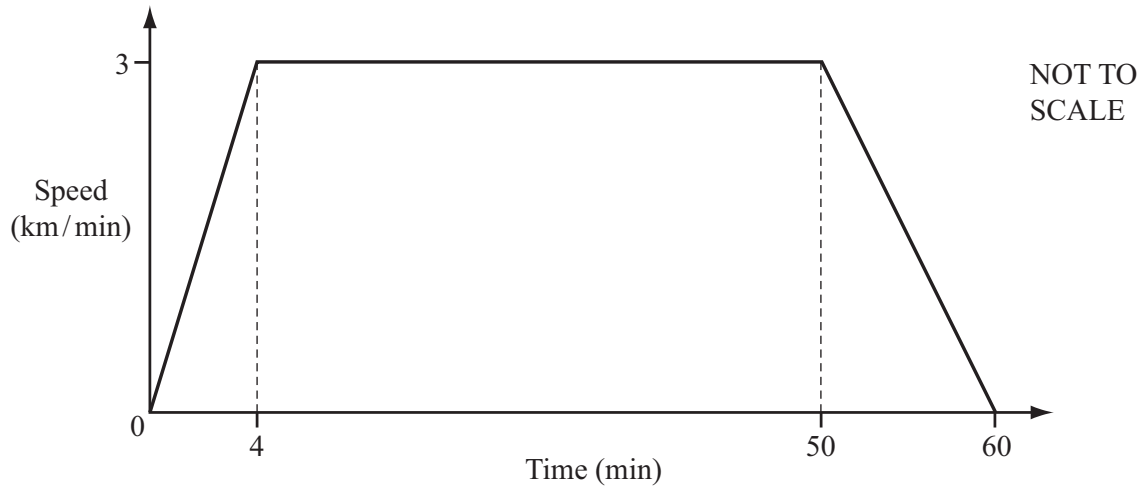
- (c) Find the acceleration of the train in the **first two minutes**.
Give your answer in m/s^2 .

Answer(c)

m/s^2 [2]

Dist Speed Time 1

9)



A train journey takes one hour.
The diagram shows the speed-time graph for this journey.

(a) Calculate the total distance of the journey.

Give your answer in kilometres.

Answer(a) , km [3]

(b) (i) Convert 3 kilometres/minute into metres/second.

Answer(b)(i) m/s [2]

(ii) Calculate the acceleration of the train during the first 4 minutes.

Give your answer in metres/second².

Answer(b)(ii) m/s² [2]