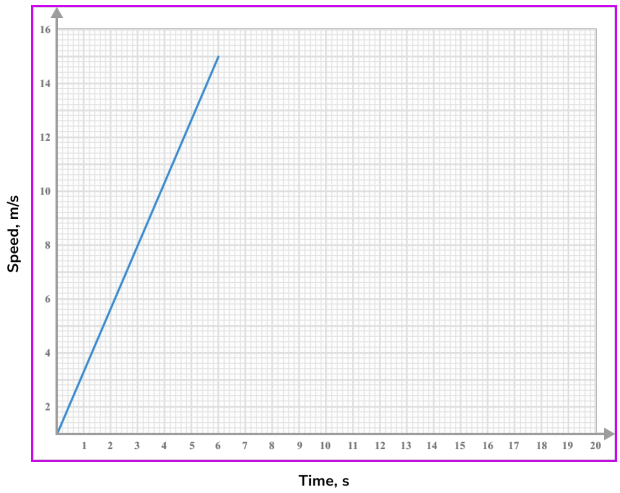
THIRD SPACE LEARNING

GCSE Exam Questions

Speed-Time Graphs | Ratio & Proportion

GCSE Exam Questions: Speed-Time Graphs

1) The speed-time graph shows the first part of a journey by a car.



(a) Find the acceleration of the car for the first part of its journey.

(1)

After the first 6 seconds of its journey, the car maintains its speed for a further 8 seconds before then slowing down at a constant rate of 5 m/s^2 until stationary.

(b) Complete the speed-time graph for the car.

(2)

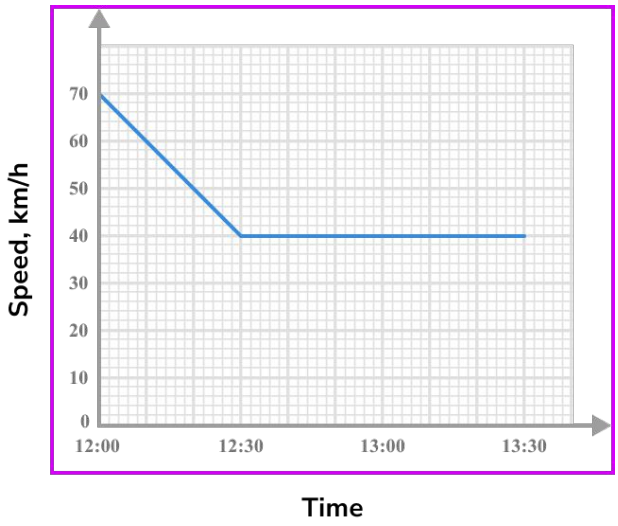
(c) Find the total distance travelled by the car.

(3)

(6 marks)

GCSE Exam Questions: Speed-Time Graphs

2) The speed-time graph shows the speed of a train between 12:00 and 13:30.



(a) Find the total distance travelled by the train in that time.

(3)

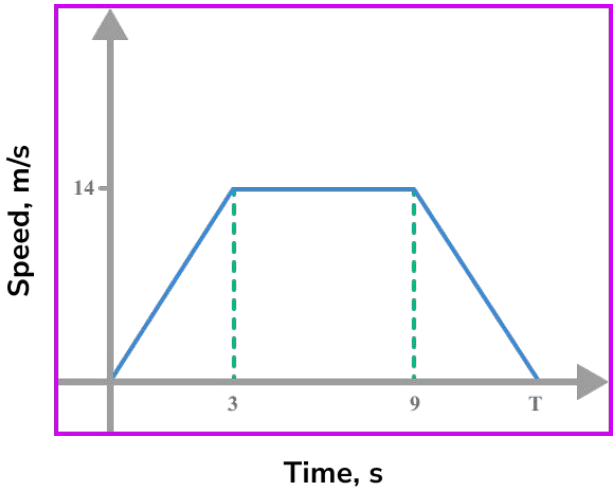
(b) Find the average speed of the train between 12:00 and 13:30.

(2)

(5 marks)

GCSE Exam Questions: Speed-Time Graphs

3) The speed-time graph shows the speed of an object over a period of T seconds.



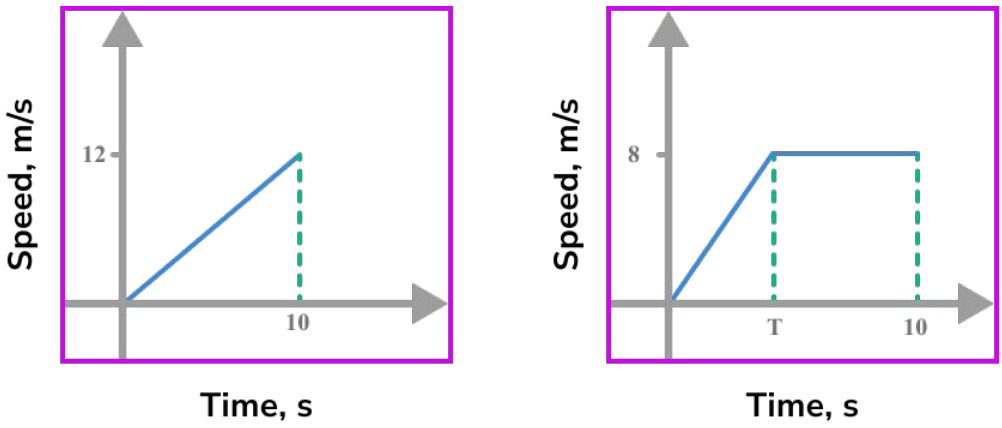
If the total distance travelled by the object is 154 metres, find the value of T.

(4 marks)

GCSE Exam Questions: Speed-Time Graphs

4) The two speed-time graphs show the speed of two objects over a 10 second period.

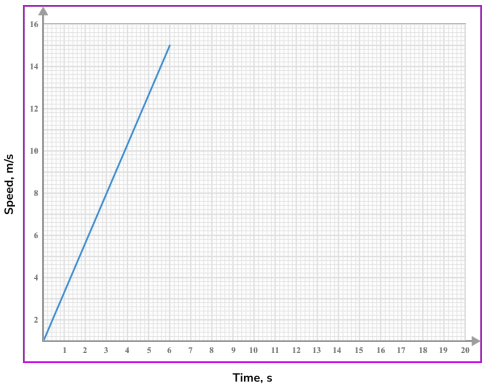
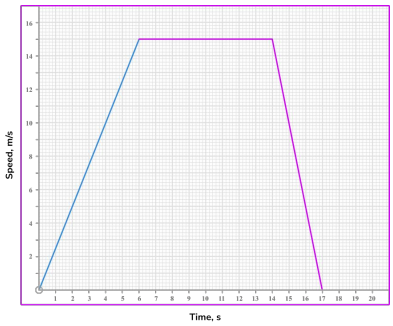
Both objects travelled the same total distance.



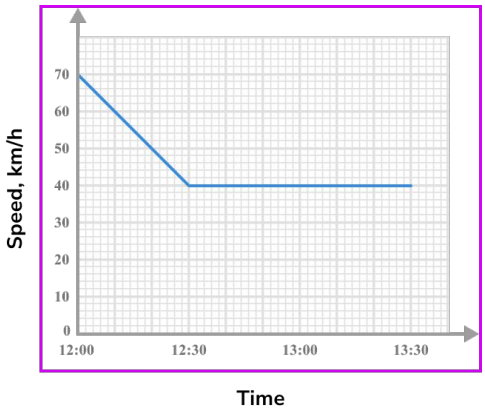
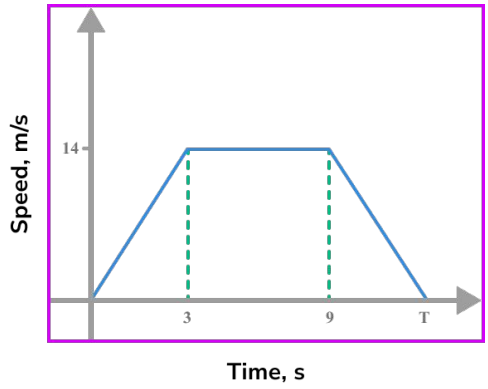
Find the value of T.

(4 marks)

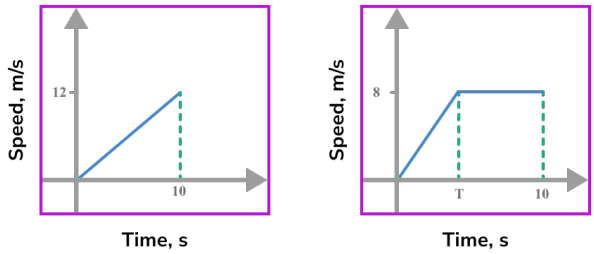
GCSE Exam Questions: Speed-Time Graphs Answers

	Question	Answer	Marks
1)	The speed-time graph shows the first part of a journey by a car.  		
(a)	Find the acceleration of the car for the first part of its journey.	**(a)** $15 \div 6 = 2.5m/s^2$	**(1)**
	After the first 6 seconds of its journey, the car maintains its speed for a further 8 seconds before then slowing down at a constant rate of 5 m/s^2 until stationary.	 	
(b)	Complete the speed-time graph for the car.	**(b)** Horizontal line drawn from (6,15) to (14,15)	**(1)**
		Line drawn from (14,15) to (17,0)	**(1)**
(c)	Find the total distance travelled by the car.	**(c)** **At least one of the following seen:** $\frac{15 \times 6}{2}$ **or** 45 $15 \times (14 - 6)$ **or** 120 $\frac{15 \times (17 - 14)}{2}$ **or** 22.5	**(1)**
		$45 + 120 + 22.5$ **oe**	**(1)**
		187.5m	**(1)**

GCSE Exam Questions: Speed-Time Graphs Answers

	Question	Answer	Marks
2)	The speed-time graph shows the speed of a train between 12:00 and 13:30.  		
(a)	Find the total distance travelled by the train in that time.	**(a)** **At least one of the following seen:** $\left(\frac{70 + 40}{2}\right) \times 0.5$ **or** 27.5 40×1 **or** 40 $40 + 27.5$ $67.5km$	 **(1)** **(1)** **(1)**
(b)	Find the average speed of the train between 12:00 and 13:30.	**(b)** *Their* $67.5 \div 1.5$ 45 *km/h*	**(1)** **(1)**
3)	The speed-time graph shows the speed of an object over a period of T seconds.  If the total distance travelled by the object is 154 metres. Find the value of T	**At least one of the following seen:** $\frac{14 \times 3}{2}$ **or** 21 $14 \times (9 - 3)$ **or** 84 $21 + 84 + \frac{14 \times (T - 9)}{2} = 154$ ***oe*** $14\,(T - 9) = 98$ ***oe*** $T = 16$	 **(1)** **(1)** **(1)** **(1)**

GCSE Exam Questions: Speed-Time Graphs Answers

	Question	Answer	Marks
4)	The two speed-time graphs show the speed of two objects over a 10 seconds period. Both objects travelled the same total distance.  Find the value of T.	$\frac{12 \times 10}{2}$ **or** 60 $\frac{8 \times T}{2} + 8(10 - T) = 60$ **oe** 80 - 4T = 60 **oe** $T = 5$	**(1)** **(1)** **(1)** **(1)**

Where to go next?

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