



4.4F Real Life and Distance Time Graphs: Foundation Tier Practice

Total Marks

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 55 minutes

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** A cyclist rides along a straight path at a steady speed of 12 km/h, shown on a distance-time graph as a straight line through the origin.
Work out the distance the cyclist has travelled after 30 minutes.

(Total for Question 1 is 1 mark)

- 2** A runner moves at a steady speed of 12 km/h, shown on a distance-time graph as a straight line through the origin. Work out the time, in minutes, when the runner reaches 5 km.

(Total for Question 2 is 1 mark)

- 3** From a distance-time graph a car travels from 0 hours to 2 hours and its distance increases from 0 km to 90 km. Work out the average speed of the car in km/h for this period.

(Total for Question 3 is 2 marks)

4 A walker goes from home to a park in 40 minutes at a steady speed of 4 km/h. Another walker takes 60 minutes to reach the same park along the same route.

(a) Work out the distance from home to the park.

(b) Which walker was faster? Give a reason.

(a) Work out the distance from home to the park.

(2)

(b) Which walker was faster? Give a reason.

(1)

(Total for Question 4 is 3 marks)

5 A distance-time graph for a short bus journey shows the following information from the start of the journey:

0 to 10 minutes: bus is stationary at 0 km.

10 to 25 minutes: bus travels at a steady speed and reaches 6 km at 25 minutes.

25 to 30 minutes: bus is stationary for a short stop.

30 to 40 minutes: bus travels and reaches 10 km at 40 minutes.

Work out the total distance travelled by the bus from 0 to 40 minutes.

(Total for Question 5 is 3 marks)

6 A student reads a distance-time graph and finds a cyclist's speed is 12 km in 30 minutes. Give the cyclist's speed in km/h.

(Total for Question 6 is 2 marks)

7 A family drive starts at 0 km. Their distance-time graph is: 0 to 1 hour they drive 30 km; 1 to 1.5 hours they stop for a break; 1.5 to 2.5 hours they drive and reach 95 km at 2.5 hours.

(a) Work out their average speed during the driving periods only (ignore the break time). Give your answer in km/h.

(b) Give the total time from start until they reach 95 km.

(a) Work out their average speed during the driving periods only. **(2)**

(b) Give the total time from start until they reach 95 km. **(1)**

(Total for Question 7 is 3 marks)

Mark scheme · 4.4F Real Life and Distance Time Graphs: Foundation Tier Practice

Question 1

- **B1** 6 km cao
- **Answer: 6 km**

Question 2

- **B1** 25 minutes cao
- **Answer: 25 minutes**

Question 3

- **M1** use speed = distance / time, e.g. $90 / 2$
- **A1** 45 km/h cao
- **Answer: 45 km/h**

Question 4

- (a) **M1** use distance = speed x time, convert 40 minutes to hours $40/60 = 2/3$
- (a) **A1** $8/3$ km or 2.67 km awrt
- (a) **Answer: $8/3$ km (2.67 km, awrt)**
- (b) **B1** first walker faster because they took less time for same distance (or higher speed 4 km/h vs $8/3$ km in 60 min gives $8/3$ km/h) oe
- (b) **Answer: The first walker was faster. Reason: they reached the park in 40 minutes at 4 km/h, which is a higher speed than the other walker who took 60 minutes for the same distance.**

Question 5

- **M1** identify distances at 25 and 40 minutes (6 km and 10 km) and subtract starting 0 km
- **M1** note that final position 10 km is total distance from start
- **A1** 10 km cao
- **Answer: 10 km**

Question 6

- **M1** convert 30 minutes to hours and compute $12 / 0.5$ or 12×2
- **A1** 24 km/h cao
- **Answer: 24 km/h**

Question 7

- (a) **M1** find total driving time = 0-1 and 1.5-2.5 so driving time = $1 + 1 = 2$ h; use speed = distance / driving time
- (a) **A1** 47.5 km/h awrt
- (a) **Answer: 47.5 km/h**
- (b) **B1** 2.5 hours cao
- (b) **Answer: 2.5 hours**