



EP.M123 Distance, Speed and Time Problems

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 55 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** A car travels at 60 km/h for 2.5 hours. How far does it travel?

- ☐ A) 120 km
☐ B) 130 km
☐ C) 150 km
☐ D) 180 km
☐ E) 240 km

(Total for Question 1 is 1 mark)

- 2** A lorry covers 90 km in 1.5 hours. Work out its average speed in km/h.

(Total for Question 2 is 1 mark)

- 3** A walker goes 5 km at an average speed of 4 km/h. Work out how long the walk takes, giving your answer in hours and minutes.

(Total for Question 3 is 2 marks)

- 4** A vehicle travels 48 km in 40 minutes. Calculate its speed in km/h.

(Total for Question 4 is 2 marks)

- 5 A car drives 30 km at 60 km/h then continues for 70 km at 70 km/h. Calculate the average speed for the entire 100 km journey. Give your answer as a fraction or to 2 decimal places.

(Total for Question 5 is 3 marks)

- 6 A cyclist moves at 10 m/s for 1 minute. How far does the cyclist travel in metres?

(Total for Question 6 is 1 mark)

- 7 A train travels at 80 km/h. How long does it take to go 200 km?

- ☐ A) 2 hours
- ☐ B) 2 hours 15 minutes
- ☐ C) 2 hours 30 minutes
- ☐ D) 2 hours 45 minutes
- ☐ E) 3 hours

(Total for Question 7 is 1 mark)

- 8 Two towns A and B are 150 km apart. A car leaves A at 09:00 travelling towards B at 50 km/h. At 10:00 a second car leaves B towards A at 60 km/h. At what time do they meet? Give your answer to the nearest minute.

(Total for Question 8 is 3 marks)

- 9 A runner averages 12 km/h for 20 minutes. How far does the runner go?

- ☐ A) 2.0 km
- ☐ B) 3.0 km
- ☐ C) 4.0 km
- ☐ D) 5.0 km
- ☐ E) 6.0 km

(Total for Question 9 is 1 mark)

- 10** Jan runs 5 km to a park at 8 km/h and returns 5 km at 5 km/h. Calculate her average speed for the whole trip. Give your answer to 2 decimal places.

(Total for Question 10 is 2 marks)

- 11** A drone travels 4,500 m at 5 m/s. Calculate how long this journey takes, giving your answer in minutes.

(Total for Question 11 is 2 marks)

- 12** A car goes for 30 minutes at 40 km/h then for 1 hour at 60 km/h. What is its average speed for the whole journey? Give your answer to 2 decimal places.

- ☐ A) 50.00 km/h
- ☐ B) 52.00 km/h
- ☐ C) 53.33 km/h
- ☐ D) 54.00 km/h
- ☐ E) 55.00 km/h

(Total for Question 12 is 1 mark)

- 13** A driver covers 210 km at an average speed of 70 km/h. How long does the journey take?

(Total for Question 13 is 1 mark)

- 14** A cyclist goes to a village at 12 km/h and returns at 8 km/h. The whole trip takes 5 hours. Find the one-way distance to the village.

(Total for Question 14 is 3 marks)

- 15** A lorry overtakes a slower vehicle. The lorry travels at 50 km/h and the slower vehicle at 40 km/h. How long does it take the lorry to be 1 km ahead of the slower vehicle? Give your answer in minutes.

(Total for Question 15 is 2 marks)

- 16** A driver travels 60 km at 80 km/h then 40 km at 40 km/h. What is the average speed for the entire journey? Give your answer to 2 decimal places.

- ☐ A) 55.00 km/h
☐ B) 56.25 km/h
☐ C) 57.14 km/h
☐ D) 58.33 km/h
☐ E) 60.00 km/h

(Total for Question 16 is 1 mark)

- 17** A jogger covers 5 km in 20 minutes. Work out the jogger's speed in km/h.

(Total for Question 17 is 1 mark)

- 18** A van travels 90 km from a depot to a site, at an average speed of 60 km/h. It returns along a different route of length 100 km, taking 2 hours 12 minutes. Find the difference between the outward and return average speeds, giving your answer to 1 decimal place.

(Total for Question 18 is 3 marks)

Mark scheme · EP.M123 Distance, Speed and Time Problems

Question 1

- **B1** option C (150 km) cao
- **Answer: C) 150 km**

Question 2

- **B1** 60 km/h cao
- **Answer: 60 km/h**

Question 3

- **M1** time = distance/speed or $5/4$ hours seen
- **A1** 1 hour 15 minutes (1.25 hours) cao
- **Answer: 1 hour 15 minutes**

Question 4

- **M1** conversion of 40 minutes to $40/60 = 2/3$ hour or equivalent method
- **A1** 72 km/h cao
- **Answer: 72 km/h**

Question 5

- **M1** time for first leg $30/60 = 0.5$ h and second leg $70/70 = 1$ h seen or equivalent
- **M1** total distance 100 km and total time 1.5 h or the expression $100/1.5$ seen
- **A1** $66\frac{2}{3}$ km/h or 66.67 km/h cao
- **Answer: $66\frac{2}{3}$ km/h (66.67 km/h)**

Question 6

- **B1** 600 m cao
- **Answer: 600 m**

Question 7

- **B1** option C (2 hours 30 minutes) cao
- **Answer: C) 2 hours 30 minutes**

Question 8

- **M1** distance travelled by first car in first hour = 50 km or remaining distance 100 km seen
- **M1** relative speed $50 + 60 = 110$ km/h and time = $100/110$ hours seen
- **A1** meet at approximately 10:55 (10:55 to nearest minute) cao
- **Answer: Approximately 10:55 (closing gap of 100 km at 09:00 + 1 hour = 100 km remaining, combined speed 110 km/h, time = $100/110$ h = 54.5 minutes, which rounds to 55 minutes after 10:00)**

Question 9

- **B1** option C (4.0 km) cao
- **Answer: C) 4.0 km ($12\text{ km/h} \times 20/60\text{ h} = 4\text{ km}$)**

Question 10

- **M1** total time = $5/8 + 5/5 = 0.625 + 1 = 1.625$ h or equivalent
- **A1** average speed = $10/1.625 = 6.15$ km/h (to 2 dp) cao
- **Answer: 6.15 km/h**

Question 11

- **M1** time = $4500/5 = 900$ seconds or method converting units shown
- **A1** 15 minutes cao
- **Answer: 15 minutes**

Question 12

- **B1** option C (53.33 km/h) cao
- **Answer: C) 53.33 km/h**

Question 13

- **B1** 3 hours cao
- **Answer: 3 hours**

Question 14

- **M1** set up equation $d/12 + d/8 = 5$ or equivalent
- **M1** solve: common denominator or multiply through to get $5d = 120$ or equivalent
- **A1** $d = 24$ km cao
- **Answer: 24 km**

Question 15

- **M1** relative speed $50 - 40 = 10$ km/h or equivalent method
- **A1** time = $1/10$ h = 0.1 h = 6 minutes cao
- **Answer: 6 minutes**

Question 16

- **B1** option C (57.14 km/h) cao
- **Answer: C) 57.14 km/h**

Question 17

- **B1** 15 km/h cao
- **Answer: 15 km/h**

Question 18

- **M1** 2 hours 12 minutes converted to 2.2 hours (or equivalent) seen
- **M1** return average speed = $100 / 2.2 = 45.4545...$ km/h (awrt 45.5) seen
- **A1** difference = $60 - 45.4545...$ = 14.5 km/h (awrt 14.5) cao
- **Answer: 14.5 km/h (return average speed = $100 / 2.2 = 45.5$ km/h to 1 d.p.; difference from the outward 60 km/h = 14.5 km/h).**