Velocity-Time and Distance-Time Graphs

GCSE Mathematics • **Higher Tier** • Grades 6–8 • Non-calculator

Name: _____ Class: _____ Total: _____ / 52

Show all your working. Marks are given for correct method as well as the final answer.

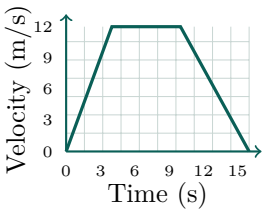
1. On a velocity-time graph, write down what the GRADIENT represents. **[1 mark]**

Answer: _____

2. On a velocity-time graph, write down what the AREA under the graph represents. **[1 mark]**

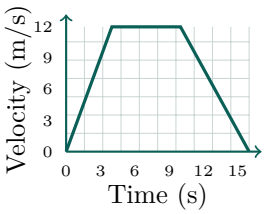
Answer: _____

3. Write down the maximum velocity shown. **[1 mark]**



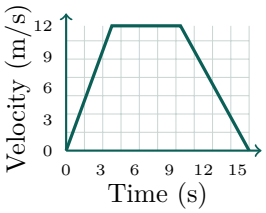
Answer: _____ **m/s**

4. Work out the acceleration over the first 4 seconds. **[2 marks]**



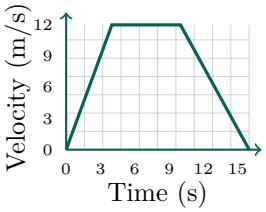
Answer: _____ **m/s^2**

5. Work out the acceleration between 4 and 10 seconds. **[2 marks]**



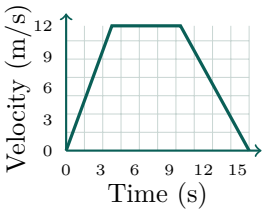
Answer: _____ **m/s^2**

6. Work out the deceleration over the last 6 seconds. **[3 marks]**



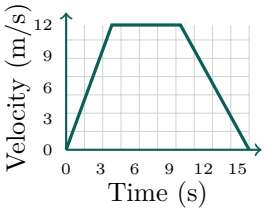
Answer: _____ **m/s^2**

7. Work out the total distance travelled. **[4 marks]**



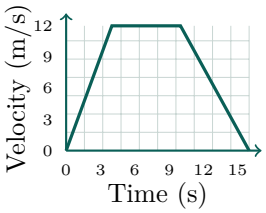
Answer: _____ **m**

8. Work out the distance travelled in the first 4 seconds. **[3 marks]**



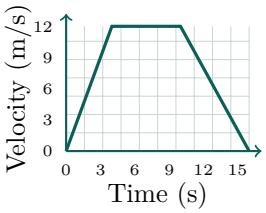
Answer: _____ **m**

9. Work out the distance travelled between 4 and 10 seconds. **[2 marks]**



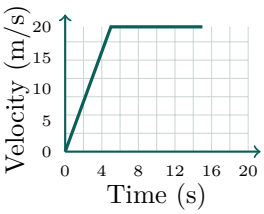
Answer: _____ **m**

10. Work out the average speed for the whole journey, to 1 d.p. **[3 marks]**



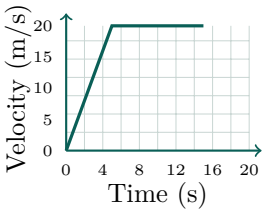
Answer: _____ **m/s**

11. Work out the acceleration in the first 5 seconds. **[2 marks]**



Answer: _____ **m/s^2**

12. Work out the distance travelled in the 15 seconds shown. **[4 marks]**

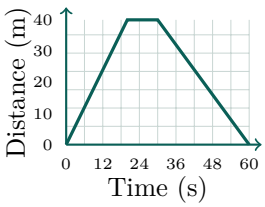


Answer: _____ **m**

13. On a DISTANCE-time graph, write down what the gradient represents. **[1 mark]**

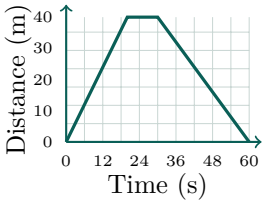
Answer: _____

14. Work out the speed over the first 20 seconds. **[2 marks]**



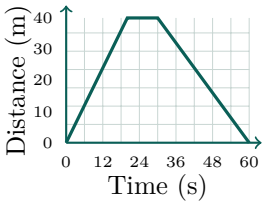
Answer: _____ **m/s**

15. Write down what is happening between 20 and 30 seconds. **[2 marks]**



Answer: _____

16. Work out the speed on the return journey. **[3 marks]**



Answer: _____ **m/s**

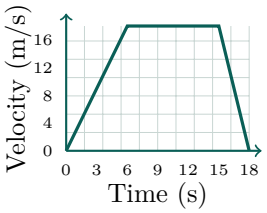
17. Explain how a distance-time graph shows a journey BACK towards the start. **[2 marks]**

Answer: _____

18. Explain why the area under a DISTANCE-time graph has no useful meaning. **[2 marks]**

Answer: _____

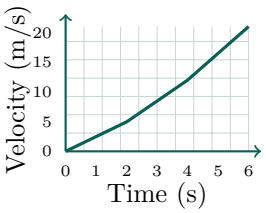
19. A car accelerates from rest to 18 m/s in 6 seconds, holds that speed for 9 seconds, then stops in 3 seconds.



(a) Work out the acceleration in the first stage. **[2 marks]**

(b) Work out the total distance travelled. **[4 marks]**

20. The graph shows a journey with a curved section, so the distance must be ESTIMATED using trapezia.



(a) Estimate the distance using three trapezia of width 2. **[4 marks]**

(b) Explain whether your estimate is too big or too small. **[2 marks]**

Answer: _____

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