

Graphing Motion

Kinematics WS _____

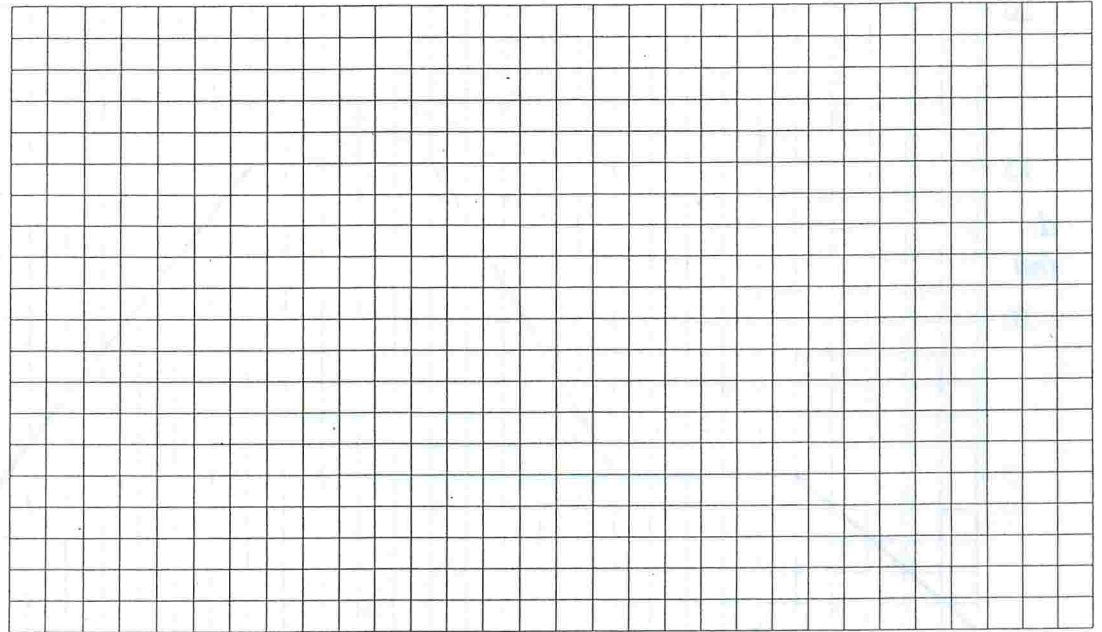
Name _____

Date _____ Per _____

1. A car travels at a constant 20 m/s for 10 s. Fill in the table showing the cars displacement from the origin at the end of each second. Then graph the motion.

t (s)	d (m)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

d

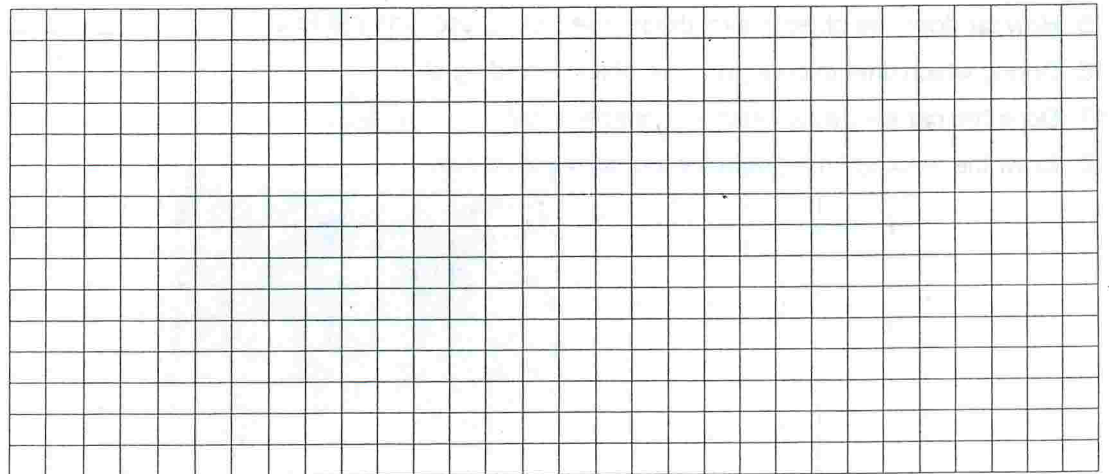


t

2. What is the slope of the curve plotted? _____
3. How does this compare to the velocity, given, in number 1 above? _____
4. Complete the table showing the cars velocity at the end of each second. Then complete the velocity-time plot.

t (s)	v (m/s)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

v

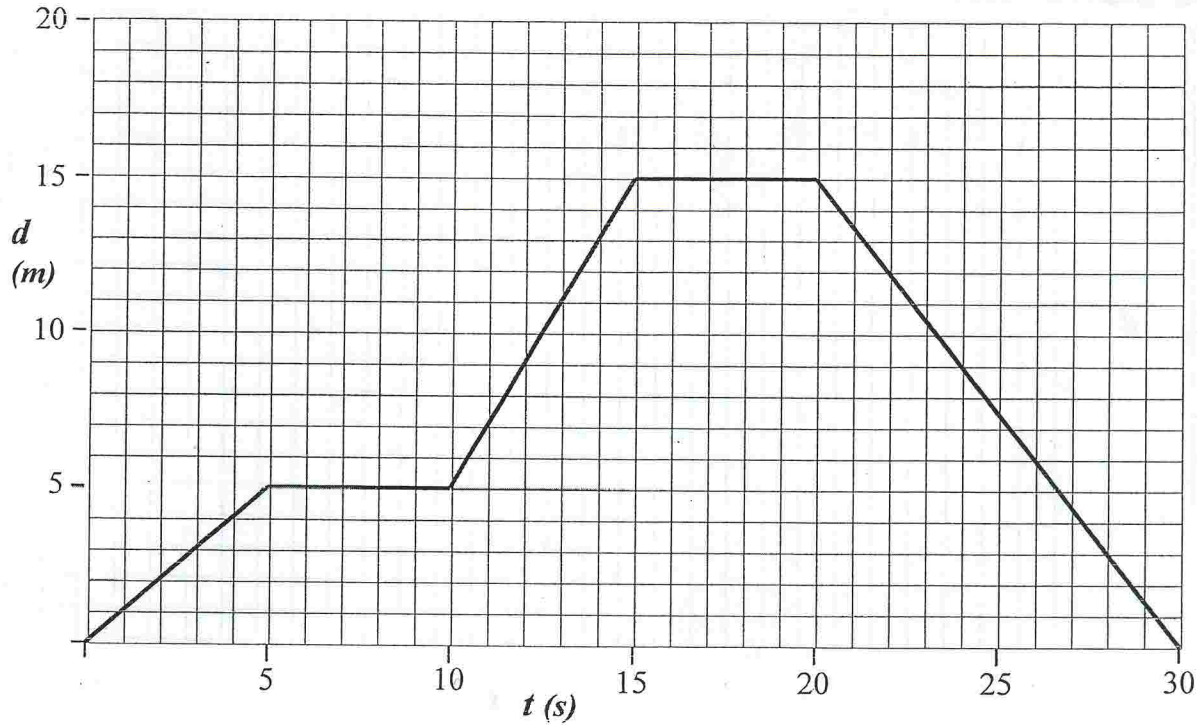


t

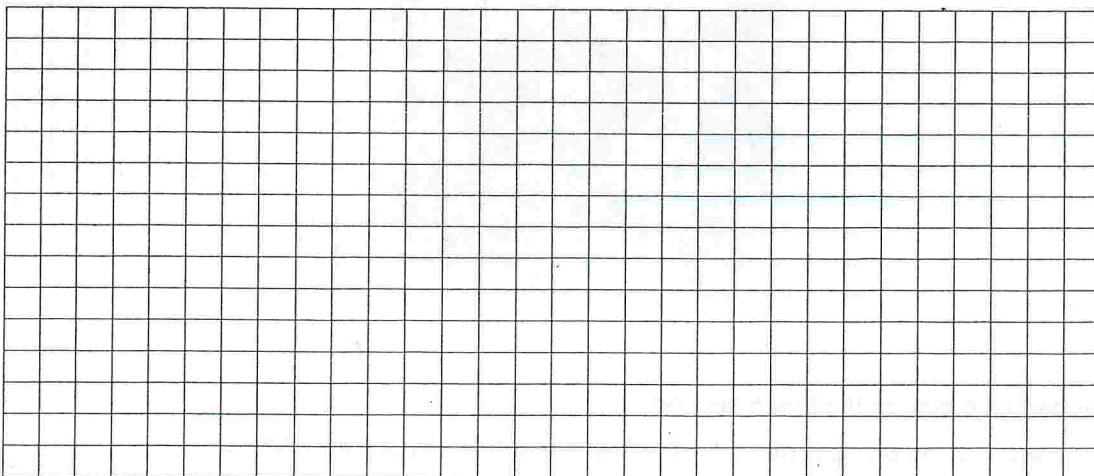
5. Find the area under the curve for the first 5 seconds. _____
6. How does this compare to the displacement, for the first 5 seconds, in number 1 above? _____

7. The **slope** of the **displacement-time** graph is _____.
8. The **slope** of the **velocity-time** graph is _____.
9. The **area under** the **acceleration-time** graph is _____.
10. The **area under** the **velocity-time** graph is _____.

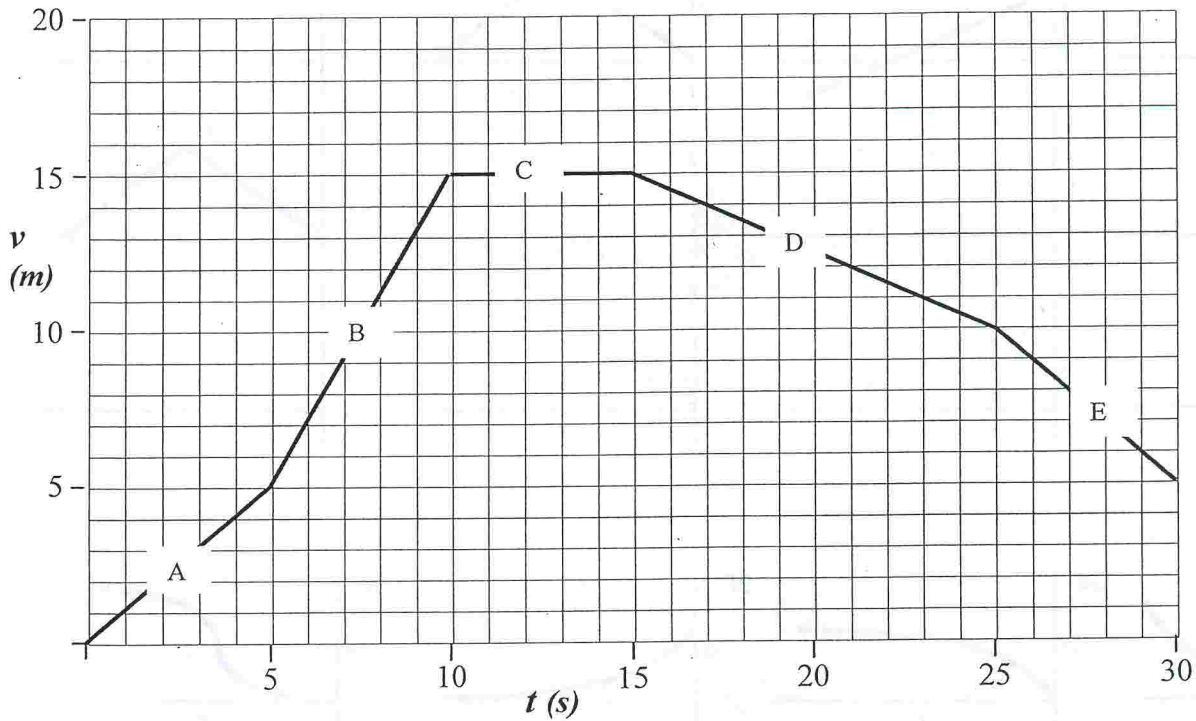
Answer the next series of questions using the following **displacement-time** graph.



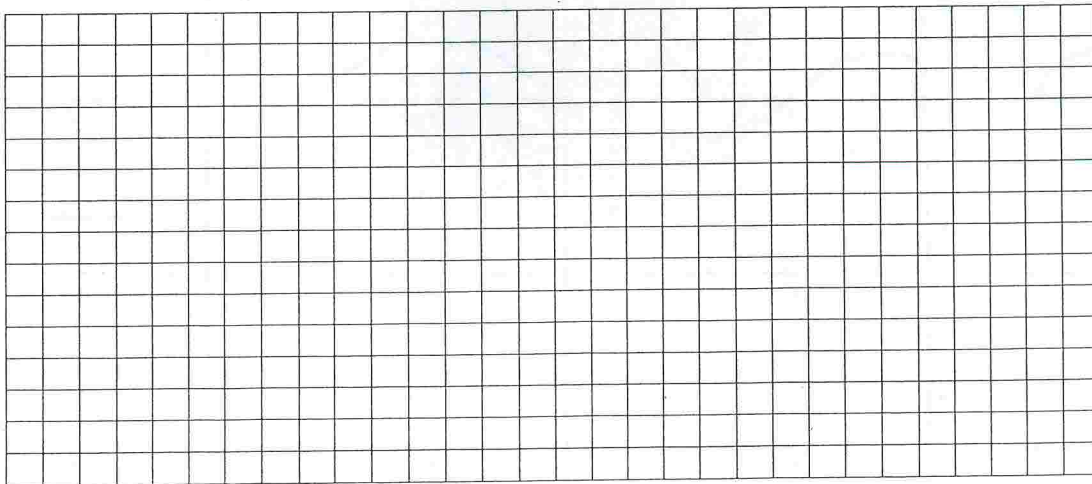
11. How far does the object travel during the first 5 seconds (1 to 5 s)? _____
12. How far does the object travel during the second 5 seconds (5 to 10 s)? _____
13. How far does the object travel during the third 5 seconds (10 to 15 s)? _____
14. How far does the object travel during the fourth 5 seconds (15 to 20 s)? _____
15. How far does the object travel during the last 10 seconds (20 to 30 s)? _____
16. During which time interval(s) is the object standing still?
17. Does the car ever accelerate in this scenario?
18. Draw the velocity time graph for the above scenario.



Answer the next series of questions using the following **velocity-time** graph.



19. During which interval(s) is the object accelerating? _____
20. During which interval(s) is the acceleration the greatest? _____
21. During which interval(s) is the object standing still? _____
22. During which intervals does the object have the same speed? _____
23. What is the displacement during interval **A**? _____
24. What is the displacement during interval **B**? _____
25. What is the displacement during interval **C**? _____
26. What is the displacement during interval **D**? _____
27. What is the displacement during interval **E**? _____
28. Draw the acceleration-time graph for the above scenario.



Complete the series of graphs: displacement-time, velocity-time, and acceleration-time.

