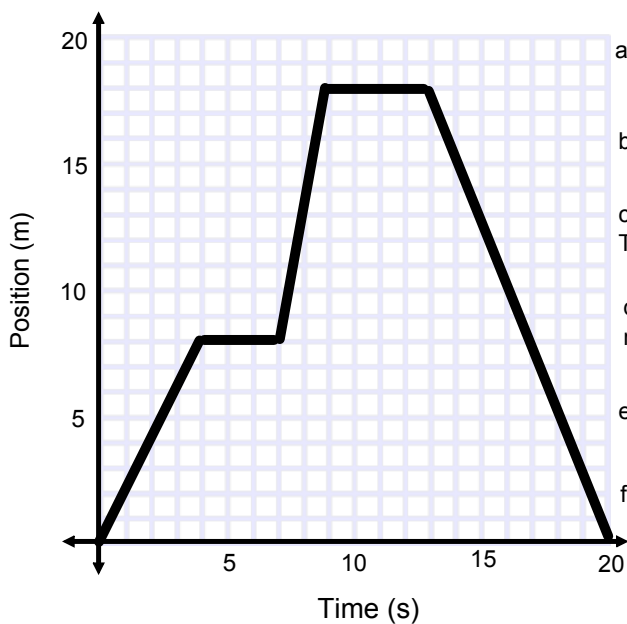


Physical Science 10 Motion Review (answers are in the brackets)

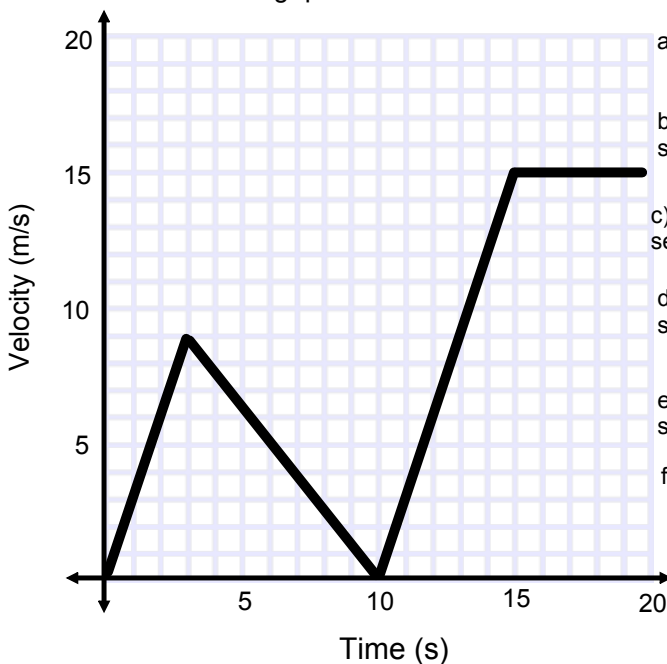
1. How long will it take to go 164 km traveling at 51 km/hr? (3.2 hr)
2. A car drives with an average speed of 112 km/hr for 3.6 hours. What distance was traveled in that time? (403 km)
3. Calculate the average velocity of a plane that flies 1575 km in a time of 2.4 hours. (656 km/h)
4. How long does it take a car to accelerate to 45 m/s from a velocity of 15 m/s under an acceleration of 1.5m/s^2 ? (20 s)
5. Calculate the acceleration of a bike that goes from 2.5 m/s to 28 m/s in 6.0 seconds. (4.25 m/s^2)
6. Initially an object is moving at 14 m/s. The object undergoes an acceleration of 8.5 m/s^2 for 10 seconds. Calculate the objects final velocity. (99 m/s)
7. A ball is launched upward with an initial velocity of 75 m/s. Gravity takes over and slows the object with an acceleration of -9.8 m/s^2 . Calculate the ball's velocity 5.0 seconds after launch. (26 m/s)

8. Answer the following questions based on the following Position - Time graph.



- a) What was the velocity during the first 2 seconds? (2 m/s)
- b) How many seconds was the object not moving? (7 seconds)
- c) How fast was the object traveling at the 6.5 second mark? The 17.85 second mark? (0 m/s; -2.6 m/s)
- d) How far from the starting point was the object at the 5 second mark? 8 s mark? 20 s mark? (8 m; 13 m; 0 m)
- e) What was the total distance traveled by the object? (36 m)
- f) Calculate the object's average speed. (1.8 m/s)

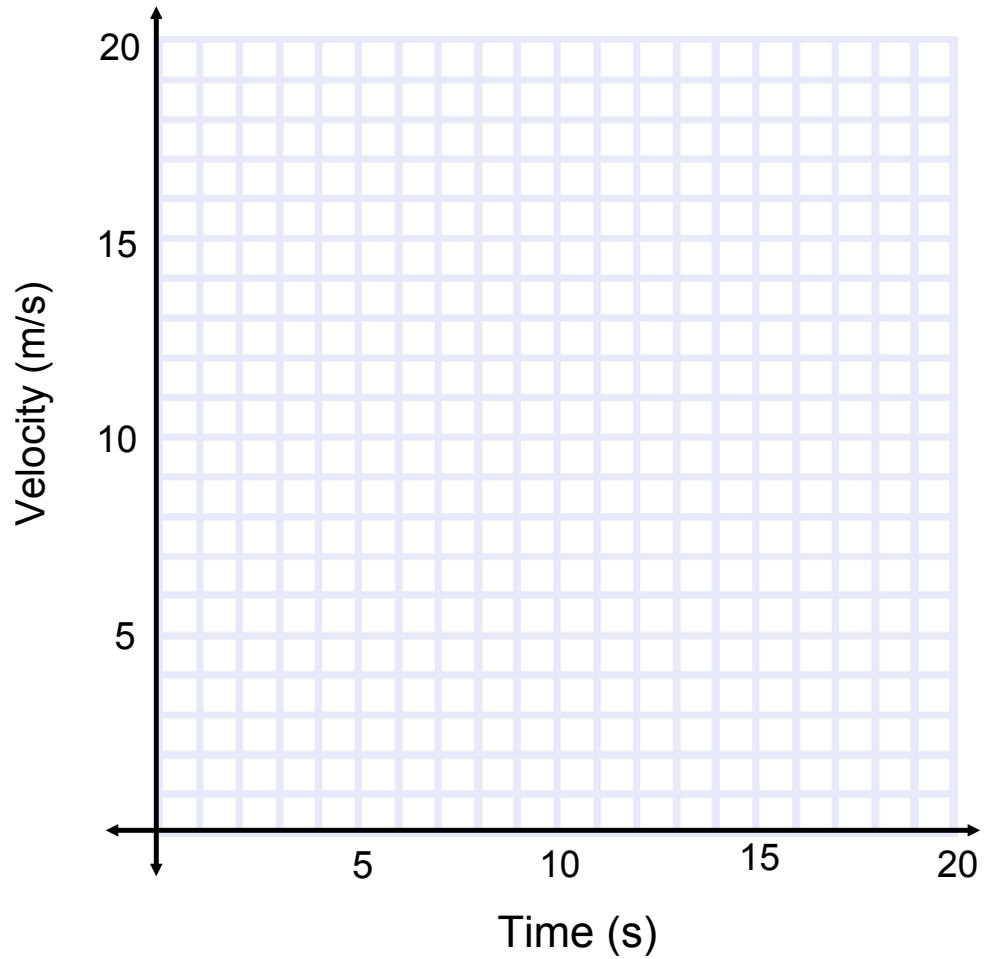
9. Answer the following questions based on the following Velocity - Time graph.



- a) What was the initial acceleration of the object? (3 m/s^2)
- b) What is the acceleration of the object during the first four seconds? (0 m/s^2)
- c) What distance was traveled during the first 10 seconds? (45 m)
- d) What was the distance traveled between 15 and 20 seconds? (75 m)
- e) What was the distance covered for the entire 20 seconds? (157.5 m)
- f) Calculate the average velocity for:
 - i) First 10 seconds (4.5 m/s)
 - ii) Last 10 seconds (11.25 m/s)
 - iii) Entire 20 seconds (7.88 m/s)

10. (a) Based on the table of information below draw the Velocity - Time graph and use it to answer the questions that follow. Assume the initial velocity is 16.0 m/s.

Acceleration (m/s ²)	Time Interval (s)
-4.0	$0 \leq t \leq 4$
5.0	$4 \leq t \leq 8$
0.0	$8 \leq t \leq 12$
-10.0	$12 \leq t \leq 14$
1.0	$14 \leq t \leq 20$



b) Calculate the change in velocity, distance traveled, and average velocity during each time interval. Summarize your calculations in the table below. (note: the answers you should get are given in the table)

Acceleration (m/s ²)	Time Interval (s)	Δ velocity (m/s)	distance (m)	v_{avg} (m/s)
-4.0	$0 \leq t \leq 4$	-16	32	8.0
5.0	$4 \leq t \leq 8$	20	40	10
0.0	$8 \leq t \leq 12$	0.0	80	20
-10.0	$12 \leq t \leq 14$	-20	20	10
1.0	$14 \leq t \leq 20$	6	18	3.0

c) Calculate the average velocity for the full 20 seconds. (9.5 m/s)

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