

PHYS 215-Mechanics I-Question Bank 5

2019-2020

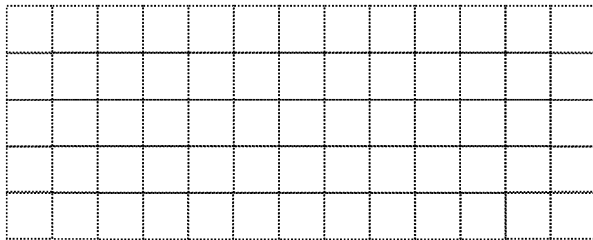
Full name:.....

Question 1

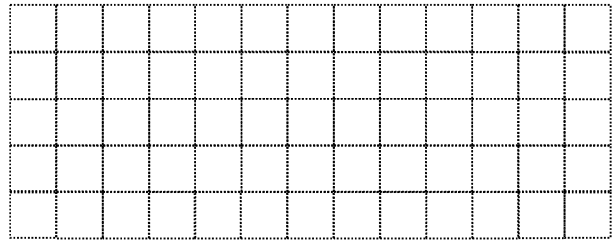
The table below shows the changes in the velocity of a moving object with respect to time.

Time(s)	0	1	2	3	4	5	6	7	8	9	10
position (m)	0	5	10	15	15	15	15	15	10	5	0

a. Plot the position - time graph



b. Plot the velocity - time graph

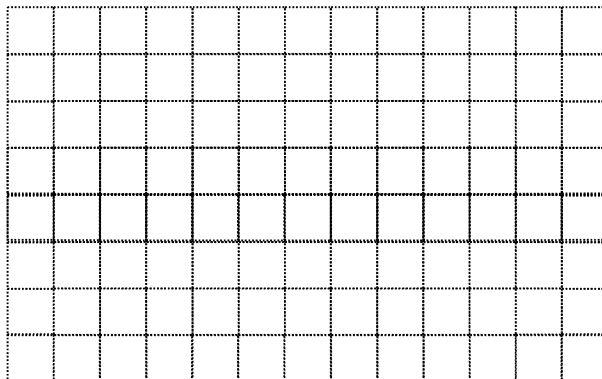


Question 2

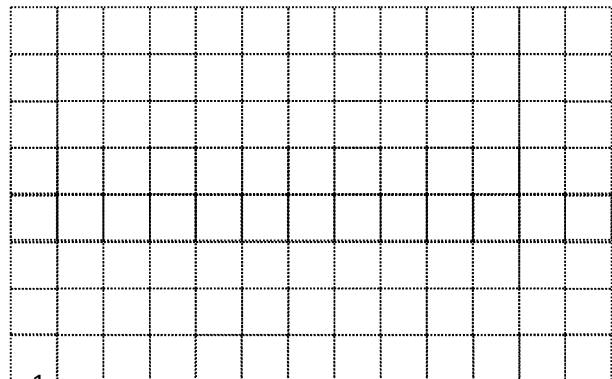
The table below shows the changes in the velocity of a moving object with respect to time.

Time(s)	0	1	2	3	4	5	6	7	8	9	10
position (m)	12	8	4	4	4	0	-4	-8	-12	-12	-12

a. Plot the position - time graph



b. Plot the velocity - time graph



Question 3

The position of a particle moving along the x-axis is given by $x(t) = 3t^3 - 9t^2 + 18$, where x is in meters and t is in seconds.

- A. What is the position of the particle at $t = 3$ seconds?
- B. What is the displacement of the particle during the time interval $t = 2$ s and $t = 4$ s?
- C. Find the velocity at $t = 4.0$ s.

Question 4

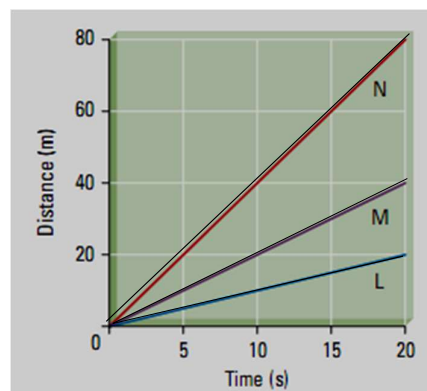
The position of a particle is given by $\vec{r} = (4t - t^2)\mathbf{i} + t^3\mathbf{j}$, where \vec{r} is in meters and t in second, where r is in meters and t is in seconds.

- A. What is the position of the particle at $t = 2$ seconds?
- B. What is the displacement of the particle during the time interval $t = 1$ s and $t = 3$ s?
- C. Find the velocity at $t = 2$ s.

Question 5

The figure on the right shows the distance-time graph of the cars N, M and L.

- a) Calculate the velocity of the cars N, M and L.



- b) What distance takes the car M in 50 seconds?