



Subject: Physics

Topic: Motion in a line

WorksheetNO#02

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Date: 10/05/17

Name of the student: -----

Class& Div: -----

Roll no: -----

S.N	QUESTIONS	MARK
1	A body covered a distance of 'l 'metre along a semicircular path. Calculate the ratio of distance to displacement.	1
2	Can a body have constant speed but a varying velocity?	1
3	Write any two uses of velocity-time graph.	1
4	Draw position time graph for two objects having zero relative velocity.	1
5	When can an object be considered as a point object?	1
6	A ball is thrown up. What is its velocity and acceleration at the top position?	1
7	A body goes from A to B with a velocity of 40m/s and comes back from B to A with a velocity of 60m/s. What is the (i) average velocity during the whole journey. (ii)Average speed during the whole journey?	2
8	A car moving at a speed of 10m/s is accelerated at the rate of 2 m/s ² .Find out the velocity after 6 sec.	2
9	Derive the expression for distance covered in n th second by a uniformly accelerated body.	2
10	A Woman starts from her home at 08.00am, walks with a speed of 5km/h on a straight road up to her office 5km away stays at the office up to 04.00pm, and returns home by an auto with a speed of 25km/hr. Choose suitable scales, and plot x-t graph of her motion.	2
11	Two cars A&B are running at velocities of 60km/h &45 km/h respectively. Calculate the relative velocity of car A if: (i)they are both travelling eastwards (ii)Car A is travelling in eastwards & B is travelling westwards.	2

12	<p>Two straight rays OA and OB on the same displacement- time graph make angles 30° and 60° with time axis respectively are shown in the figure.</p> <p>i) Which ray represents more velocity?</p> <p>ii) What is the ratio of velocities represented by OA and OB?</p>	2
13	A car covers one round in 6 seconds on a circular path of circumference 628m. What will be the distance after 15 s?	3
14	Define the following Average velocity, Relative velocity, Instantaneous velocity.	3
15	An electron starting from rest has a velocity that increases linearly with time that is $v=kt$, where $k= 2\text{m/s}^2$. What will be distance covered in first 3 seconds of its motion?	3
16	An object moving on a straight line covers first half of the distance at a speed v and second half of the distance at a speed $2v$. Find its average speed.	3
17	A car moving a straight highway with speed 126 km/h is brought to a stop within a distance of 200m. What is the retardation of the car and how long does it take for the car to stop?	3
18	What is relative velocity? Derive the expression to find relative velocity of two bodies when they travelling in the same direction .Represent graphically(1)when they are travelling in same direction with same velocity(2)when they are travelling in same direction with different velocity.	3
19	Derive all three equations of motion graphically.	5