



PHYSICS

BOOKS - NCERT PHYSICS (HINGLISH)

MOTION

Motion

1. A particle is moving in a circular path of radius r . The displacement after half a circle would be

A. zero

B. πr

C. $2r$

D. $2\pi r$

Answer: C



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2. A body is thrown vertically upward with velocity u , the greatest height h to which it will rise is,

A. u / g

B. $u^2 / 2g$

C. u^2 / g

D. $u / 2g$

Answer: C



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3. The numerical ratio of displacement to the distance covered is always

A. always less than 1

B. always equal to 1

C. equal or less than 1

D. equal or more than 1

Answer: C



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4. If the displacement of an object is proportional to square of time, then the object moves with

A. uniform velocity

B. uniform acceleration

C. increasing acceleration

D. decreasing acceleration

Answer:

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5. From the given v-t graph (see figure), it can be inferred that the object is

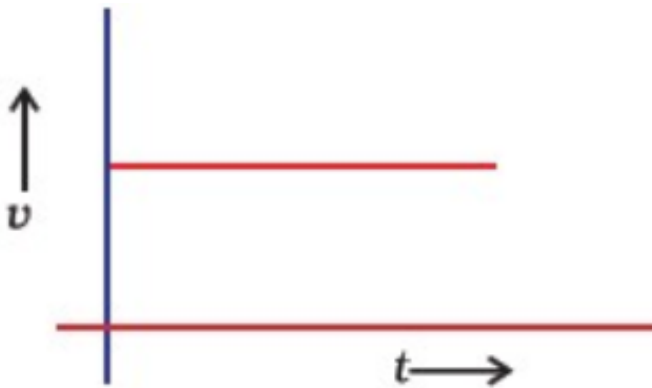


Fig. 8.1

A. in uniform motion

B. at rest

C. in non-uniform motion

D. moving with uniform acceleration

Answer:



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6. Suppose a boy is enjoying a ride on a merry-go-round which is moving with a constant speed of 10ms^{-1} . It implies that the boy is

A. at rest

B. moving with no acceleration

C. in accelerated motion

D. moving with uniform velocity

Answer: 3



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7. Area under $a = (v - t)$ graph represents a physical quantity which has the unit

A. m^2

B. m

C. m^3

D. ms^{-1}

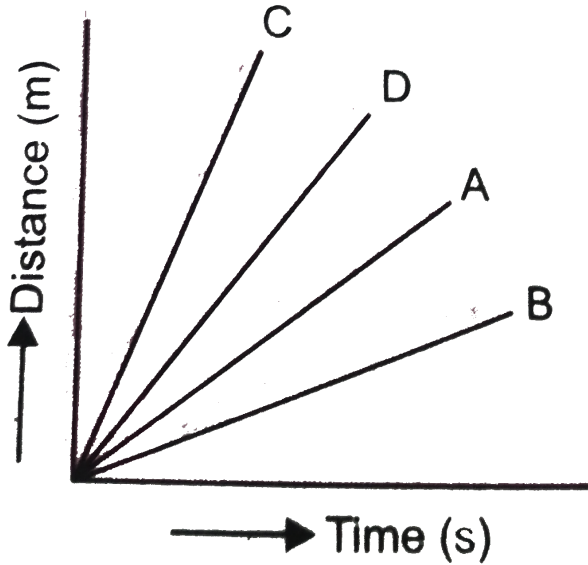
Answer:



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8. Four cars A , B and C are moving on a levelled road. Their distance versus time graphs are

shown in Fig. Choose the correct statement



- A. Car A is faster than car D
- B. Car B is the slowest
- C. Car D is faster than car C
- D. Car C is the slowest

Answer: C



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9. Which of the following figures represents uniform motion of a moving object correctly ?

A. 

B. 

C. 

D. 

Answer:



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10. Which of the following figures represents uniform motion of a moving object correctly ?

- A. the distance
- B. the displacement
- C. the acceleration
- D. the speed

Answer:



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11. In which of the following cases of motions, the distance moved and the magnitude of displacement are equal ?

- A. If the car is moving on straight road
- B. If the car is moving in circular path
- C. The pendulum is moving to and fro
- D. The earth is revolving around the sun

Answer: 1



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12. The displacement of a moving object in a given interval of a time is zero. Would the distance travelled by the object also be zero ?
Justify your answer ?



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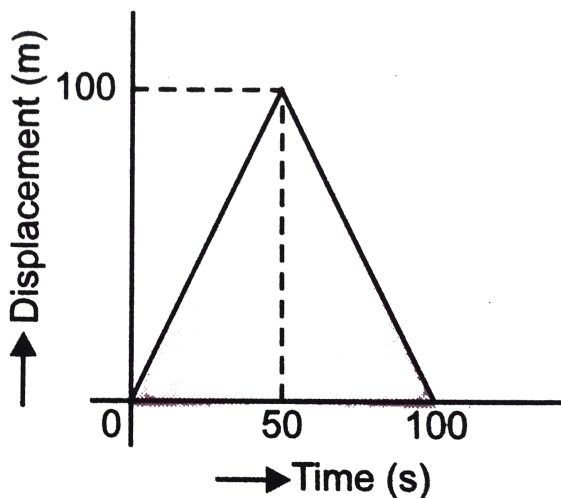
13. How will the equations of motion for an object moving with a uniform velocity change ?



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14. A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement-time graph is shown in Figure. Plot a velocity-time graph for

the same.



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15. A car starts from rest and moves along the x-axis with constant acceleration 5ms^{-2} for 8 seconds. If it then continues with constant

velocity, what distance will the car cover in 12 seconds since it started from the rest ?



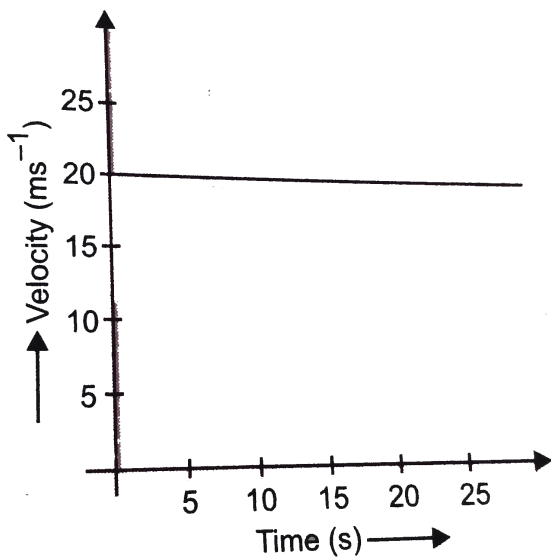
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16. A motorcyclist drives from A to B with a uniform speed of 30kmh^{-1} and returns back with a speed of 20kmh^{-1} . Find its average speed.



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17. The velocity-time graph shows the motion of a cyclist. Find (i) its acceleration (ii) its velocity and (iii) the distance covered by the cyclist in 15 seconds.



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18. An object is dropped from rest at a height of $150m$ and simultaneously another object is dropped from rest at a height $100m$. What is the difference in their height after $2s$ if both the objects drop with same acceleration ? How does the difference in height vary with time ?



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19. An object starting from rest travels $20m$ in first $2s$ and $160m$ in next $4s$. What will be the velocity after $7s$ from the start.



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20. Using following data, draw time-displacement graph for a moving object.

Time (s)	0	2	4	6	8	10	12	14	16
Displacement (m)	0	2	4	4	4	6	4	2	0

Use this graph to find average velocity for first 4s, for next 4 s and for last 6 s.



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21. An electron moving with a velocity of $5 \times 10^4 \text{ms}^{-1}$ enters into a uniform electric field

and acquires a uniform acceleration of $10^4 m s^{-2}$ in the direction of its initial motion.

(i) Calculate the time in which the electron would acquire a velocity double of its initial velocity.

(ii) How much distance the electron would cover in this time ?



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22. Obtain a relation for the distance travelled by an object moving with a uniform acceleration in the interval between 4th and 5th seconds.



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23. Two stones are thrown vertically upwards simultaneously with their initial velocities u_1 and u_2 respectively. Prove that the heights reached by them would be in the ratio of $u_1^2 : u_2^2$ (Assume upward acceleration is $-g$ and downward acceleration to be $+g$).



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Short Answer Type Questions

1. Draw a velocity versus time graph of a stone thrown vertically upwards and then coming downwards after attaining the maximum height .



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