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#503/1, Near Prince Hostel, Opp. Sahara Hospital, Civil Lines, Ludhiana.

+91-9872491915 / +91-9872500195

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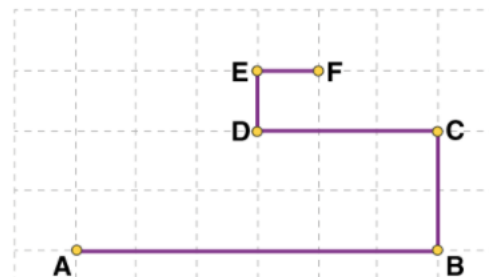
Chapter 8 - Motion

Category: Assignment

By: Er. Ritu Jindal

Assignment 1

- When do the distance and displacement of a moving object have the same magnitude?
- If a body covers a distance of zero, what can be said about its displacement?
- Calculate the distance and displacement of a body moving in a complete circle.
- Can displacement be zero even if distance is not zero? Give one example to explain your answer.
- Can the displacement be greater than the distance travelled by an object?
- Suppose a ball is thrown vertically upwards from a position P above the ground. It rises to the highest point Q and returns to the same point P. What is the net displacement and distance travelled by the ball?
- An object moves along the grid through points A, B, C, D, E, and F as shown below. The side of square tiles measures 0.5 km.
[a] Calculate the distance covered by the moving object.
[b] Find the magnitude of the displacement of the object.
- Displacement is a
[a] scalar quantity [b] vector quantity
[c] base quantity [d] derived quantity
- Read the given statements and select the correct option.
Statement 1: The displacement of a body may be zero, though distance can be finite.
Statement 2: If a body moves such that finally it arrives at initial point, then displacement is zero while distance is finite.
(a) Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1
(b) Both statements 1 and 2 are true and statement 2 is not the correct explanation of statement 1
(c) Statement 1 is true and statement 2 is false.
(d) Statement 1 is false and statement 2 is true.
- Differentiate between distance and displacement.



11. A car travels from point A to B and then comes back. Suppose $AB=5\text{m}$. In this case,
- (a) distance travelled is 10m , while the displacement is zero.
 - (b) displacement is 10m , while the distance travelled is zero.
 - (c) displacement and the distance travelled is zero.
12. None of the above. The numerical ratio of displacement to distance for a moving object is:
- (a) always less than 1
 - (b) equal to 1 or more than 1
 - (c) always more than 1
 - (d) equal to 1 or less than 1
13. A farmer moves along the boundary of the square field of side 10m in 40 seconds. What will be the distance covered and magnitude of displacement of the farmer at the end of 2 minute 20 seconds from its initial position?
14. A particle is moving in a circular path of radius r . The displacement after half a circle would be:
- (a) 0
 - (b) πr
 - (c) $2r$
 - (d) $2\pi r$
