Worksheet: Distance and Displacement

1. **Distance Covered**: Distance covered by any moving object is defined as the length of the path the body has covered while moving from one point to other point.

![Diagram showing distance covered]

For example, if Akash (let’s call him ‘A’) moves to Chennai (let’s call it ‘C’) via Ooty (let’s call it ‘O’), the distance Akash will cover is \((AO + OC)\), which is equal to \(5 + 6 = 11\) meters.

2. **Displacement**: Displacement is defined as the shortest length between the initial position and the final position of an object.

![Diagram showing displacement]

In the figure the body moves from A to O and finally to C. In this case displacement is AC and is directed from A to C.
Can you guess what displacement is, if a moving body is back to its original position by looking at the example given below?

A: Displacement: ______________________meters

B: Displacement: ______________________meters

C: Displacement: ______________________meters
Whenever a moving object comes back to its original position, its displacement is zero.

1) Answer the following questions if the distance between your school and home is 20 km.

   I. What is the distance covered by you when you go to your school?
      ________________________________________________________________
      ________________________________________________________________
      ________________________________________________________________
      ________________________________________________________________

   II. What is your displacement, when you come back home?
      ________________________________________________________________
      ________________________________________________________________
      ________________________________________________________________
      ________________________________________________________________

   III. What is the distance covered when you are back home assuming you come back by the same path?
      ________________________________________________________________
      ________________________________________________________________
      ________________________________________________________________
      ________________________________________________________________

2) Can you think of 5 examples from your day-to-day life and surroundings for moving object/body where displacement is 0. For example, the displacement of earth in a year is ‘0’.
   i___________________________________________________________
   ii___________________________________________________________
   iii__________________________________________________________
   iv___________________________________________________________
   v___________________________________________________________

3) In the following picture find out the distance covered by an object when it moves from ‘C’ to ‘A’, taking each cm. as 1 km.
4) Ravi is moving on a circular path of radius 10 meters. Find out the distance he covers and displacement of his body as per the table given below:

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Ravi</th>
<th>Distance</th>
<th>Displacement</th>
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<tbody>
<tr>
<td>1</td>
<td>1 complete round</td>
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<tr>
<td>2</td>
<td>2 complete rounds</td>
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<td>3</td>
<td>3 complete rounds</td>
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<td>4</td>
<td>4 complete rounds</td>
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<td>5</td>
<td>5 complete rounds</td>
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Reflection: Did you find any pattern in the above example?

_______________________________________________________________________________________________
_______________________________________________________________________________________________
_______________________________________________________________________________________________

5) Go for a round trip (home to a place in your city and back) for 4 days with your parents and note down the distance covered and the displacement. For measuring the distance covered use the speedometer of the car/bike/scooter used for the round trip.

<table>
<thead>
<tr>
<th>Day/date</th>
<th>Place visited</th>
<th>Distance covered for round trip</th>
<th>Displacement</th>
<th>Reflection</th>
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<tbody>
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