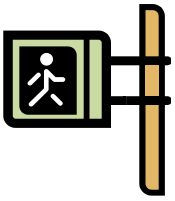
Distance and Displacement Lab



Group Name:

Period:

Follow the instruction below to fill out the data tables as you walk two different paths and measure the distance and displacements.

Path #1

1. Place a piece of tape where you will begin your walk. This tape marks the ***"starting point".***

2. Walk 5 steps forward and stop. **This is distance #1.** Using the meter stick, have your partner measure distance #1. Write that distance in the table below.

3. Now turn around (180°) and walk 3 steps and stop. **This is distance #2.** Using the meter stick, have your partner measure distance #2. Write that distance in the table below.

4. Now turn around again (180°) and walk 7 steps and stop. **This is distance #3.** Using the meter stick, have your partner measure distance #3. Write that distance in the table below.

5. Finally, have your partner measure how far you are from the *starting point*. **This is your measured displacement.** Write that displacement in the table below.

6. Find your **calculated displacement** by adding distance #1 and #3. Then subtract distance #2. Write that displacement in the table below.

Measured Distances (m)		**Measured Displacement (m)**	
Distance #1		Total Displacement for Path #1	
Distance #2		**Calculated Displacement (m)**	
Distance #3		Calc. Displacement for Path #1	
Total Distance for Path #1			

Path #2

7. Find your piece of tape again, and walk 3 steps forward and measure how far you walked. This is **distance #1**. Record below.

8. Turn 90° left, walk 5 steps and measure how far you walked. This is **distance #2.** Record below.

9. Turn 90° left, walk 3 steps and measure how far you walked. This is **distance #3**. Record below.

10. Turn 90° left, walk 7 steps and measure how far you walked. This is **distance #4.** Record below.

11. Have your partner measure how far you are form the *starting point*. This is your **measured displacement**. Record below.

12. Find your **calculated displacement**. To find **calculated displacement** subtract distance #2 from distance #4. Record below

Measured Distances (m)		Measured Displacement (m)	
Distance #1		Total Displacement for Path #2	
Distance #2		Calculated Displacement (m)	
Distance #3		Calc. Displacement for Path #2	
Distance #4			
Total Distance for Path #2			

Path #3

13. Find your piece of tape again, and walk 3 steps forward. This is **distance #1.** Record below.

14. Turn 90° right and walk 4 steps. This is **distance #2.** Record below.

15. Have your partner measure how far you are from the *starting point.* This is **measured displacement.** Record below.

16. Find your **calculated displacement**. To find calculated displacement we're going to do some simple trigonometry. Square distance #1 and distance #2 and add them together. Then take the square root of your sum. Refer to formula below:

$\text{Distance } \#1^2 + \text{Distance } \#2^2 = \text{Total Displacement}$ Then... $\sqrt{\text{Total}} = \text{Calculated}$

Measured Distances (m)		**Measured Displacement (m)**	
Distance #1		Total Displacement for Path #3	
Distance #2		**Calculated Displacement (m)**	
Total Distance for Path #1		Calc. Displacement for Path #3	