Distance and Displacement Name _____

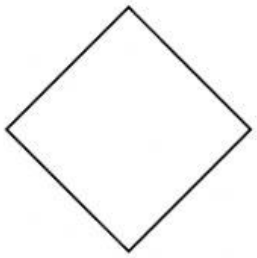
Write definitions for distance and displacement in the blanks below.

1. Distance - _____

2. Displacement - _____

*You may leave direction out of your answers for displacement for the rest of the worksheet.

3. The typical baseball diamond is a square 90 ft long on each side. Suppose a player hits a homerun and makes one complete trip from home plate, around the bases, and back to home plate.



Complete the table by finding the player's distance and displacement as he rounds the bases. Include the proper units. All angles are right angles. (Hint: You may need Pythagorean's theorem for 2nd base.)

	at home plate	at 1st base	at 2nd base	at 3rd base	back at home
distance					
displacement					



4. A runner at a track meet completes exactly one lap around a 400 m track.

distance = _____

displacement = _____

5. The runner completes exactly 2 laps around a 400 m track.

distance = _____

displacement = _____

6. For any object in motion, distance is always _____ displacement.

A. less than
B. less than or equal to
C. equal to
D. greater than or equal to
E. greater than

(over)

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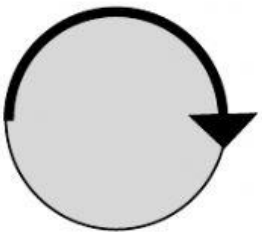
7. A bug walks exactly halfway around the edge of a circular cupcake with a diameter of 5 cm.



distance = _____

displacement = _____

8. A swimmer swims a half lap, moving from the left end to the right end of a pool that is 50 meters long.



distance = _____

displacement = _____

9. A swimmer swims an entire lap, moving from the left end to the right end and back again to the left end in a pool that is 50 meters long.



distance = _____

displacement = _____

10. For a typical day in your life, from the time you get out of bed in the morning to the time you climb back into your bed at night, estimate the following:

distance = _____ displacement = _____

11. Think of the total distance you have covered in your lifetime. Is it possible for you to move in some direction to reduce this distance to zero? _____

12. If so, where would you go? If not, why not?

13. Is it possible for you to make your lifetime displacement equal to zero? _____

14. If so, where would you go? If not, why not?

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