PHY 201 Quiz #1 **Name _____**

Score _____

Instructions:
1. Do all of your work on this sheet.
2. **Show all of your steps** in problems for full credit.
3. **Be clear and neat** in your work. Any illegible work, or scribbling in the margins, will not be graded.
4. Place your **answers in a box**. Do not forget **units**!
5. If you need more space, you may use the back of the page and write **On back** in the problem space.

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1. **Multiple Guess (2 pts)** Find the answer which best fits the question and write it in the space provided.

a) The average and instantaneous speeds of an object are equal when the object
a. has constant velocity. b. has constant acceleration.
c. moves in a straight line. d. covers twice as much distance in each second. e. none of the above.

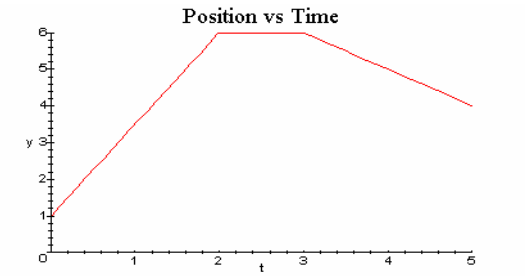
_____

b) Which prefix represents one-thousandth?
a. kilo b. mega c. centi d micro e. milli.

_____

2. **Definition/Principle (6 pts)**
a. List three of the kinematic equations for horizontal motion.

b. Someone makes a trip according to the graph below. For *y* in meters and *t* in seconds, find the average velocity over each segment of the trip. [Indicate all three on the graph.]



3. **Problems (12 pts)** .
a. Sound travels at a constant speed of 767 mph. How much time does it take for the sound of thunder to travel 1.00 km?

b. A cyclist moves at 14.0 m/s. To pass a second cyclist, the first one speeds up to 21.0 m/s with a constant acceleration of 1.2 m/s^2. During this acceleration, how far has the cyclist gone?

c. A person drops a stone from the roof of a building, 30.0 m above the ground.

i. How long does it take the stone to reach the ground?

ii. What is its velocity right before hitting the ground?

d. The position of a rolling ball is given by $x(t) = 3t^2 - 2t + 1$ m. Find

i. The average velocity from t = 0.0 s to 2.0 s.

ii. The instantaneous velocity as a function of time.