Name:_____ Date:_____

Mr. Croom's Physics Chapter 2: One Dimensional Motion

Average Velocity vs. Speed

Solve the following problems

1. A car heads north at 40 miles per hours for 3 hours then stops for 2 hours. Then the car heads south at 20 mile per hour for 1 hour. Then the car goes north 90 miles in 2 hours.
    a. What was the average speed of the trip?

    b. What was the average velocity of the trip?

    c. What the average velocity of the last 2 hours

2. A car goes 45 mph north for 3 hours. Then stops for an hour. Then the car goes south 20 miles in 30 minutes. Then the car stops for an hour. Then the car finishes its trip by traveling north at 60 miles per hour for 1.5 hours.
    a. What was the displacement of the car for the trip?

    b. What was the distance traveled by the car?

    c. What was the total time of the trip?

    d. What was the average speed of the trip?

    e. What was the average velocity of the trip?

    f. What was the average speed when the car was heading south?

3. (Giancoli, p.42 #3) If you are driving 110 km/h along a straight road and you look to the side for 2.0s, how far do you travel during this inattentive period?

4. (Giancoli p. 42 #5) You are driving home from a trip at 65 mph for 130 miles. It then begins to rain and you slow to 55 mph. You arrive home after driving 3.3 hours.
   a. How far did you travel?

   b. What was your average speed?

5. (Giancoli p. 42 #6) According to a rule-of thumb, every five seconds between a lightning flash and the following thunder gives the distance of the storm in miles. Assuming that the flash of light arrives in essentially no time at all.
   a. What is the speed of sound in miles/second?

   b. What is it in miles/hour?

   c. What is it in m/s

6. (Giancoli p. 42 #7) A person jogs eight complete laps around a 400 meter track in a total of 12.5 minutes.
   a. Calculate the average speed in m/s.

   b. Calculate the average velocity in m/s.

7. (Giancoli p. 42 #8) A horse canters away from its trainer in a straight line, moving 130 m away in 14.0 s. It then turns abruptly and gallops halfway back in 4.8s.
   a. Calculate the average speed.

   b. Calculate its average velocity.

8. Giancoli p. 42 #9) Two locomotives approach each other on parallel tracks. Each has a speed of 95 km/h with respect to the ground. If they are initially 8.5 km apart, how long will it be before they reach each other?

9. Giancoli p. 42 #10) an airplane travels 2100 km at a speed of 800 km/h and then encounters a tail wind that boosts it speed to 1000 km/h, for the next 1800 km.
    a. What was the total time of the trip in hours?

    b. What was the total time of the trip in minutes?

    c. What was the average speed of the plane for the trip?

    d. What was the average velocity of the plane for the trip?

10. Giancoli p. 42 #11) A person takes a round trip in which the outgoing 200 km is covered at 90 km/h, followed by a 1 hour lunch break, and return 200km is covered at 50 km/h.
    a. What is the average velocity?

    b. What is the average speed in km/h?

    c. What is the average speed in m/s?