Chapter 4 Review Sheet
Integrated Science – Physics & Engineering Design

Name_____Period_____

1. Define the following terms:
    a. Speed

    b. Velocity

    c. Acceleration

    d. Vector quantity

    e. Free fall

    f. Strong relationship between variables

    g. Weak relationship between variables

2. What is the difference between average speed and instantaneous speed?

3. What is the acceleration due to gravity on Earth?

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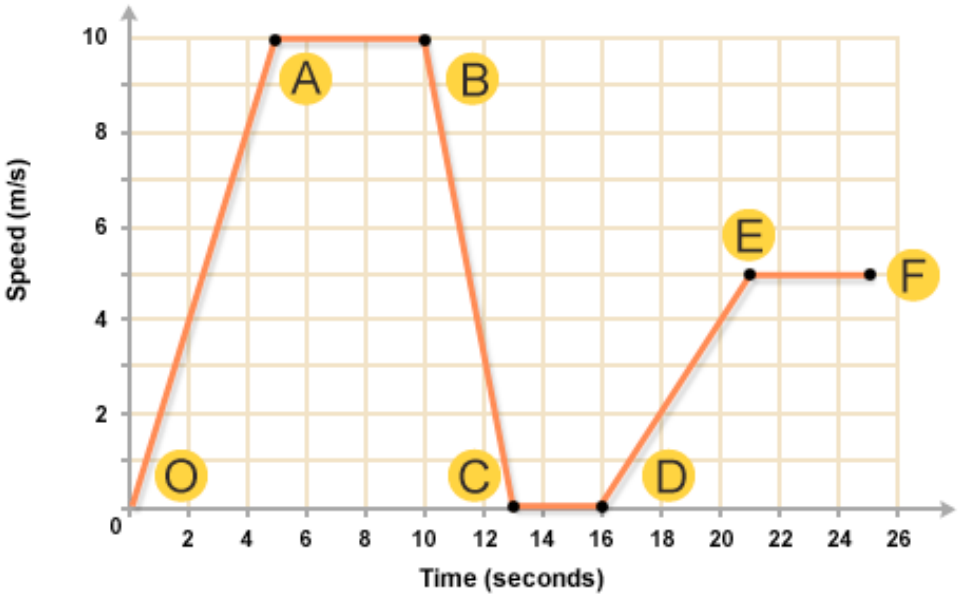
4. What is the difference between speed and velocity?

5. Refer to Figure 1:



a. What segment(s)of the graph show zero velocity?

b. What segment(s) of the graph show zero acceleration?

c. What segment(s) of the graph show negative acceleration?

d. What segment(s) of the graph show positive acceleration?

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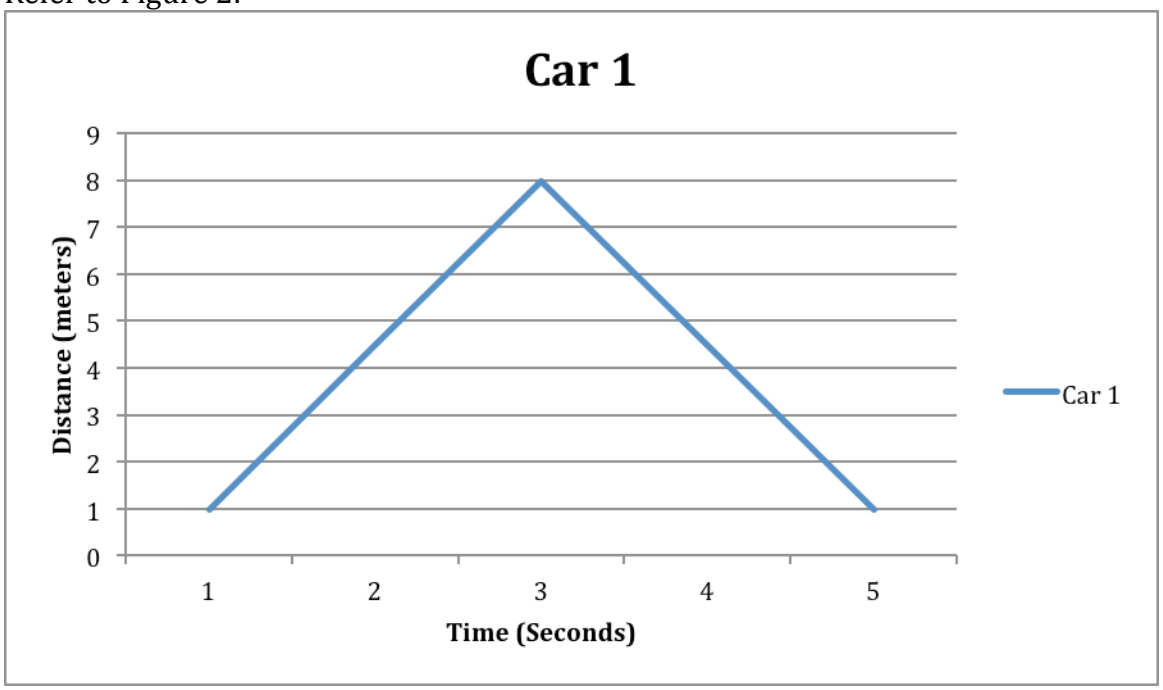
6. Refer to Figure 2:



   a. Is the car accelerating? Why or why not?

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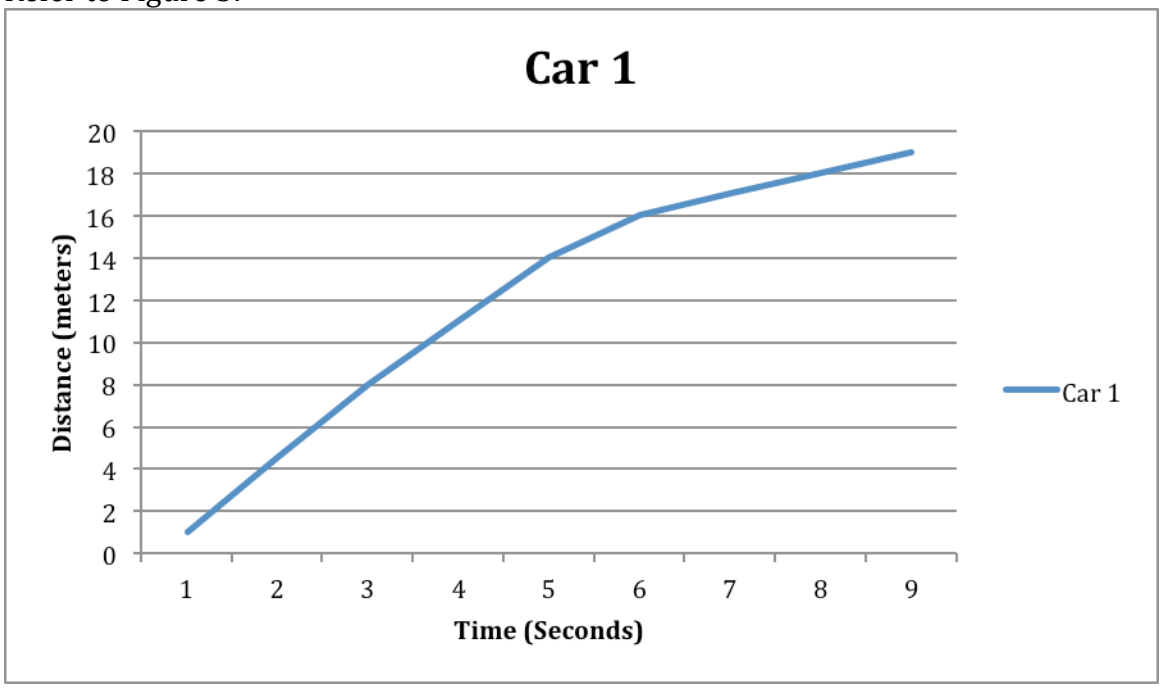
7. Refer to Figure 3:



   a. Is the car accelerating? Why or why not?

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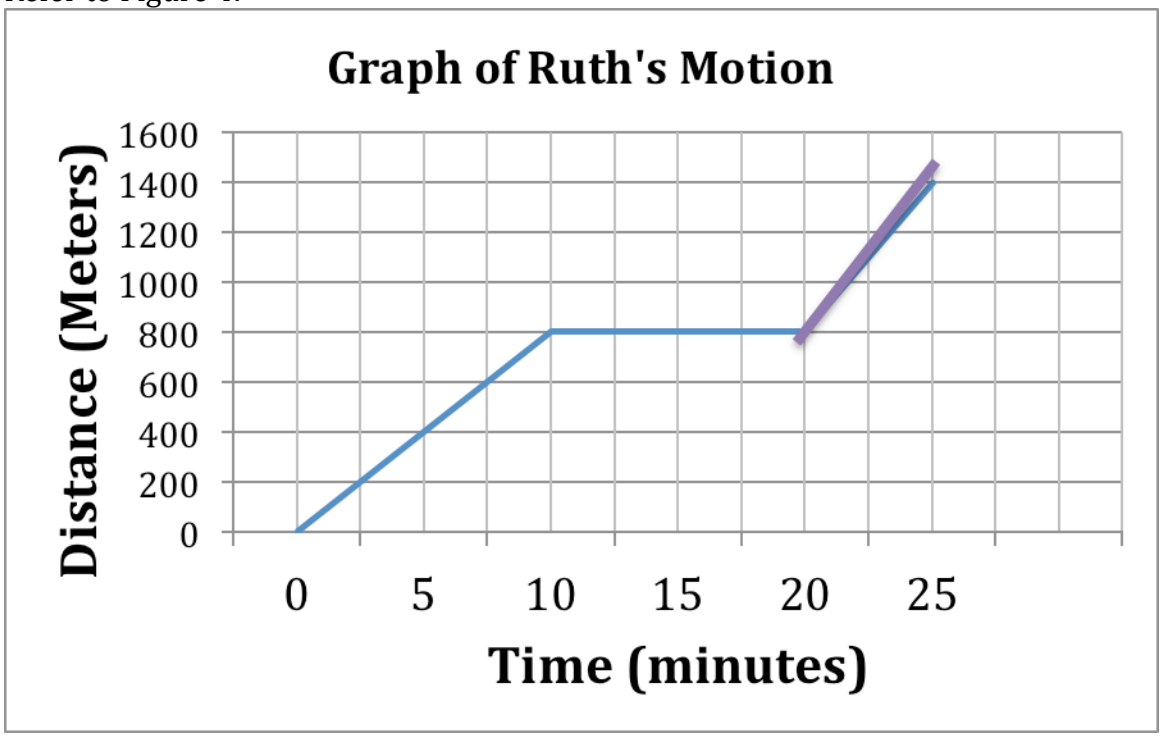
8. Refer to Figure 4:



a. Is Ruth traveling at a constant velocity? Why or why not?

b. What is indicated about Ruth's motion between 10 and 20 minutes?

c. During what time is Ruth moving the fastest?

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9. Refer to Figure 5:

a. Are the runners accelerating? Why or why not?

b. Which runner is moving fastest? How do you know?

c. How far has each runner gone in 100 seconds?

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For each problem below, carry out these steps:

- Write the **formula** that you will use to solve the problem
- Re-write the formula, substituting known values **with units**
- Write the answer using the proper **unit**
- Check you answer for the proper number of **significant figures**
- Check you work for accuracy

10. A bicyclist travels 30.0 km in 1.8 hours. What is the cyclist's average speed?

11. How much time would it take for the sound of thunder to travel 3,000 meters if sound travels at a speed of 330 m/s?

12. A snail moves about 0.25 meters per minute. How many meters can the snail cover in 35 min?

13. A motorcycle slows from 100 m/s to 10 m/s in 5 seconds. What is the acceleration of the motorcycle?

14. A jet starts at rest and after 10 seconds is moving at 400 m/s. What is the acceleration of the jet?