UNIT II: Review   Name_____ Per:____#:_____
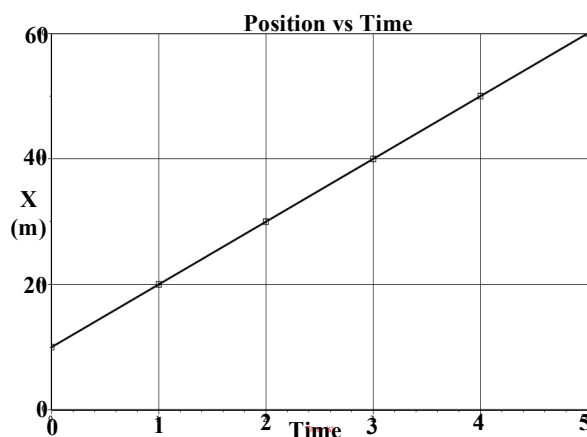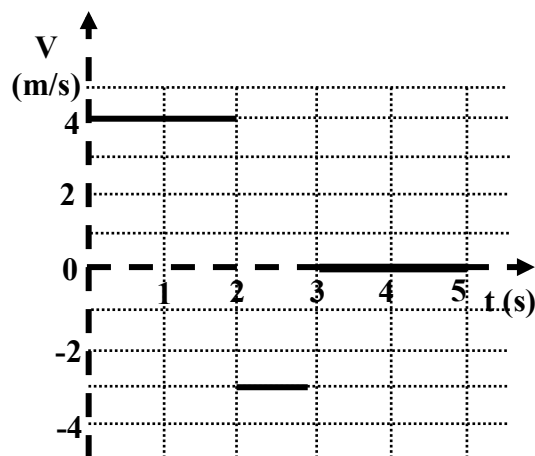
1. Consider the position vs time graph at right.
    a. Determine the average velocity of the object. Show formula and work with units.

Position vs Time

    b. Write a mathematical equation to describe the motion of the object.
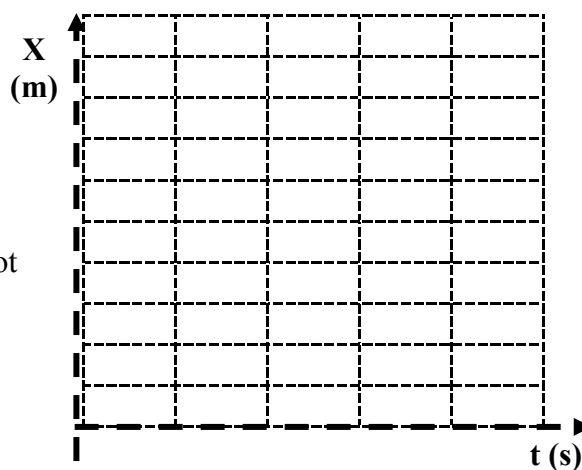
2. Shown to the right is a velocity vs time graph for an object.
    a. Describe the motion of the object.

    b. Draw the corresponding position vs time graph. Number the x & t axis.
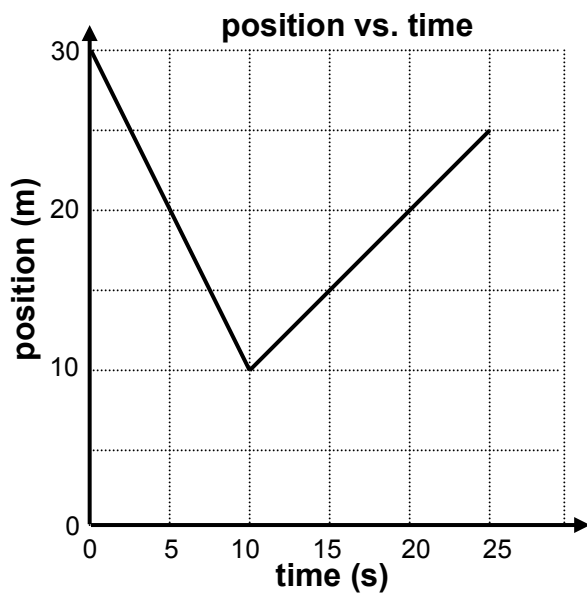
    c. How far did the object travel in the interval t =1s to t = 2s?

    d. What is the total displacement? Explain how you got the answer.

3. A race car travels at a speed of 95 m/s. How far does it travel in 12.5 s? Use the appropriate mathematical expression and show how units cancel.

4. A bird travels toward zero position, then suddenly reverses direction.

position vs. time
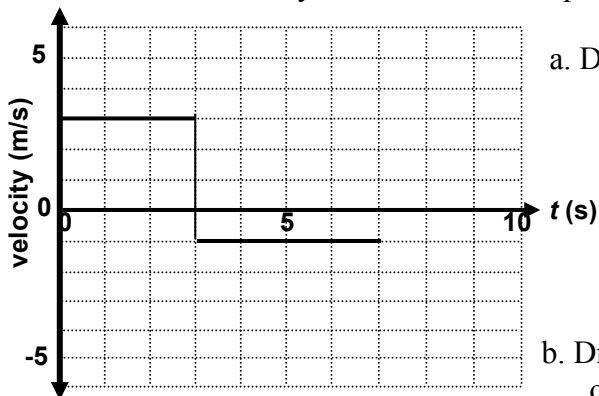

a. Find the average velocity from t = 0 s to t = 10 s.

b. Find the average velocity from t = 10 s to t = 20 s.

c. Determine the average speed from t = 0 s to t = 20 s.

d. Determine the average velocity from t = 0 s to t = 20 s.
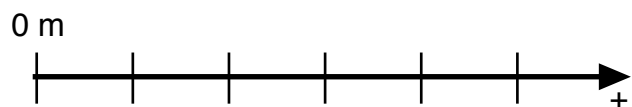
e. Find the velocity at t = 5 seconds.

5. A basketball initially travels at 3 meters per second for 3 seconds:
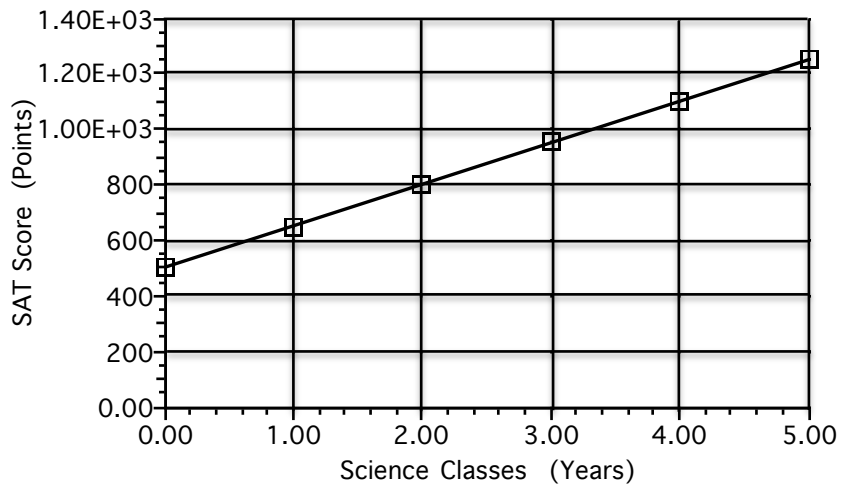

a. Describe the motion of the ball after t = 3 seconds.

b. Draw a quantitative motion map that represents the motion of the object.

c. How far did the ball travel from t = 3 s to t = 7 s?

0 m

+

Unit 1 Review:Scientific Methods

1. The graph below shows the relationship between scores on the SAT exam and the number of years students study science.

   a. What is the mathematical equation that states the relationship described by the graph?

   b. Write a clear, English sentence that describes the meaning of the slope.

Statistics:	Slope	Y Intercept
Data Set 1	150.	500.

   c. What would be the SAT score of a student who took seven science classes?

3. A student performed an experiment with a metal sphere. The student shot the sphere from a slingshot and measured its maximum height. Six different trials were performed with the sphere being shot at a different angle from the horizontal for each trial.

   a. What is the relationship being studied?

   b. What is the independent variable in this experiment?

   c. What is the dependent variable in this experiment?

   d. What variable(s) must be held constant throughout this experiment?

4. Describe the relationships that we proved in our pendulum lab. The variables included were period, mass, amplitude, and length. **Use complete, English sentences to describe the relationships!!**

5. Below is a graph of the relationship between scholarship awards and the effort students exerted trying to win scholarships.

   a. Write the mathematical equation that states the relationship described by the graph.
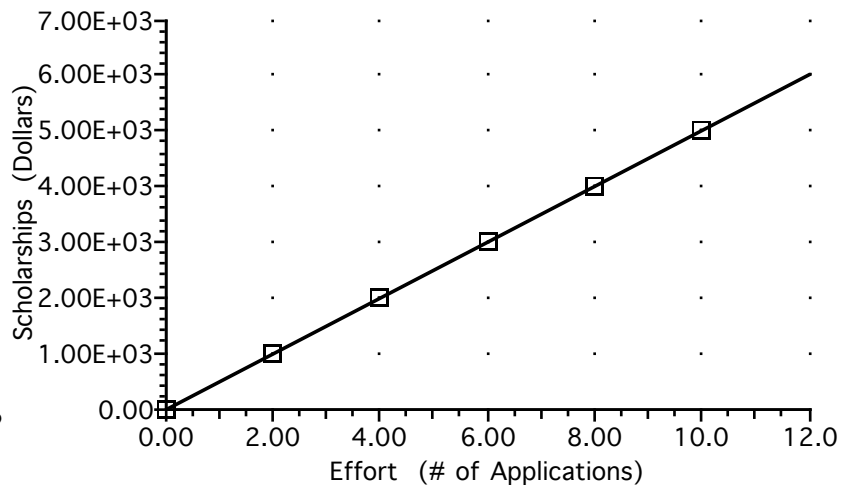
   b. What does the y-intercept illustrate?

Scholarships (Dollars) vs. Effort (# of Applications)

Statistics:	Slope	Y Intercept
Data Set 1	500.	0.00

   c. Using the mathematical model, how many applications would be needed to earn $8000?

6. For each of the following relationships:
   • Write what method should be used to linearize the data.
   • Write the mathematical equation that would describe the straight line produced.
   • Sketch a graph that visually represents the relationship.

   a. Hyperbolic (Inverse)

   b. Top Opening Parabola

   c. Side Opening Parabola