Motion in One Dimension– Prelab Quiz

Answer these questions after reading the "Motion in One Dimension" assignment. Submit your answers via Blackboard as either a MS Word (.docx) or MS Excel spreadsheet file (.xlsx). Be sure to show all of your work so that partial credit can be given.

The position of an object is measured as a function of time. The data that are collected are presented in Figure 1.

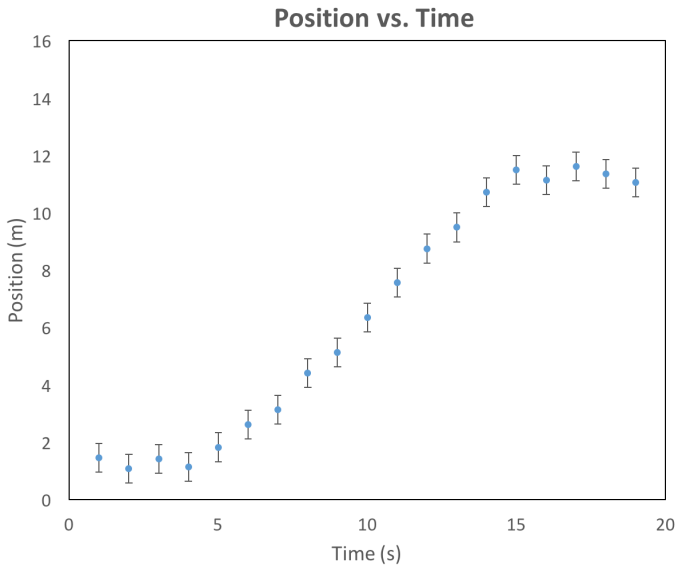

Figure 1: Position vs. time data for a measured object.

Use the data presented in Figure 1 to answer the following questions:

1. **[2 points]** At what sampling rate were the data collected?
2. **[2 points]** What is the uncertainty on the measured position?
3. **[2 points]** In your own words, describe the motion of the object between $t = 0$ and $t = 20$ seconds. Be sure to identify and describe all important events that are recorded in the data.

4. **[3 points]** Describe a possible physical system that could be measured to produce the data show in Figure 1. Be sure to include at least the following details in your answer:

   - The object or system to measure.
   - A description of how the measurement is made.
   - The tools required to make the measurement.

   Your proposed system should be able to account for all of the details that are included in the plot.

5. **[1 point – awarded for completion]** In the lab activity, you will be measuring the velocity of a toy car in two ways. First, using a crude position vs. time method and second, using an electronic position sensor. Given that you will be measuring the velocity of the same object, do you expect that your two measurements will agree with one another? Justify your answer with an explanatory sentence or two.