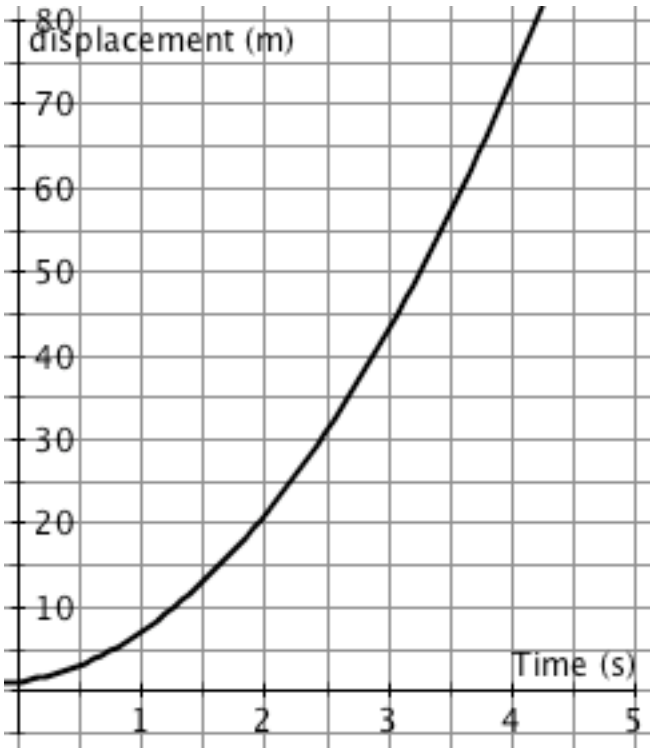
ICP – Physics – Sample Data Analysis

We will work with the following data from an experiment performed with an accelerating object

Time (s)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0
Displacement (m)	1	3	7	13	21	31	43	57	73

Below is a graph of the information provided on the data table:

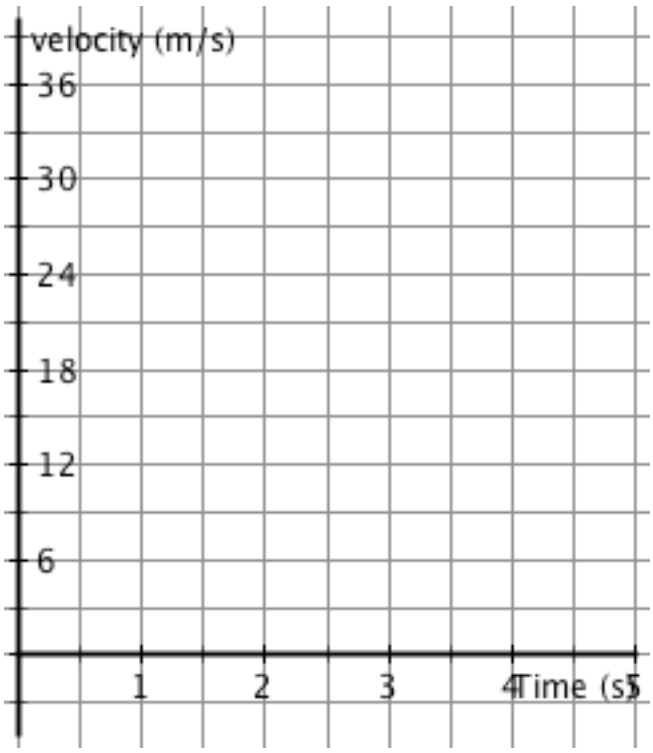


In order to produce the accompanying VT graphs, you will perform 2 types of mathematical analysis of the data.

MATH ANALYSIS METHOD 1: Determine the average velocity between each pair of successive data points. Record these average velocities on an observation table

Time Interval (s)	0-0.5	0.5-1	1.0-1.5	1.5-2.0	2.0-2.5	2.5-3.0	3.0-3.5	3.5-4.0
Speed (m/s)								

And here is a grid for graphing the results:



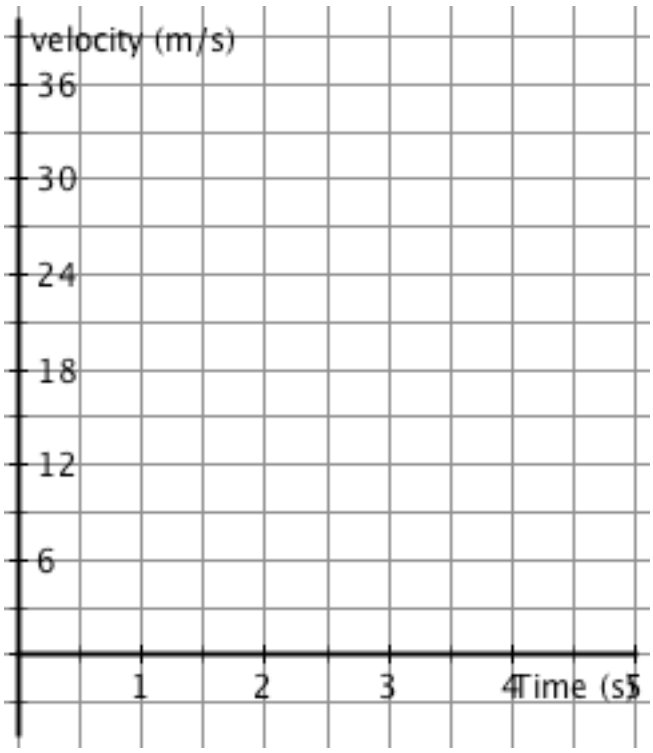
Now calculate the acceleration of the object

And now determine the percent error (once I give you the accepted value for the acceleration)

MATH ANALYSIS METHOD 2: Using the tangent method, determine the instantaneous velocity at any six points on the distance versus time graph from step 2. Record these points on the table

Time (s)								
Speed (m/s)								

And here is a grid for graphing the results:



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