SPH3U0 **Analyzing Velocity-Time Graphs** Date:\_\_\_\_\_\_\_

Given a **Velocity-Time** Graph we can find the corresponding **Acceleration-Time** and **Position-Time** graphs.

The acceleration-time graph is found by calculating ***slope of the velocity-time graph.***

The position-time graph is found by adding up the displacements found by calculating the

***area under the curve of the velocity-time graph.***

***Example: Find the corresponding acceleration-time and position-time graphs for the motion of the object represented by the given velocity-time graph. Assume the object starts at the origin at time zero.***

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| Acceleration  (m/s2)  [E] |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  | Time  (s) |
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| Velocity  (m/s)  [E]  4  2  0  -2 |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  | Time  (s) |
| 2 4 6 8 10 12 |  |  |  |  |  |  |  |  |  |  |  |
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| Position  (m)  [E] |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |