**Unit 2 - Worksheet 2**

**Motion Maps**

In the Buggy Simulation, you wrote a function that would reproduce the motion you observed in the Buggy Lab. Fill in the blanks below with the function you used.

delta-t = \_\_\_\_\_

**examples:**

next-x(\_\_\_\_\_) **is** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

next-x(\_\_\_\_\_) **is** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**end**

**fun** next-x(\_\_\_\_\_):

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**end**

Which term of your function told the program to move the car at a constant rate?

We will call that term a *differential* and the function a *differential function*. Using differential functions means we can break down complicated motion into more manageable functions.

If delta-t was set to 1, meaning that the program performed one computation per second, what would you see in the simulation? How would the car move?

1. Construct a motion map for the Buggy Simulation with delta-t = 1.



Practice making motion maps by analyzing the position vs. clock reading graphs and creating a corresponding motion map, or by sketching the graph that corresponds to the given motion map

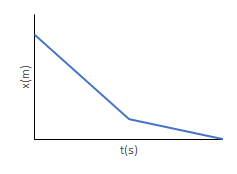
|  |  |
| --- | --- |
|  |  |
| Write a differential function for the next position of this object. (Note that you can’t calculate the actual velocity from the graph). | |

|  |  |
| --- | --- |
|  |  |

How does the differential function for the next position of this object compare to the object in #2?

|  |  |
| --- | --- |
|  |  |

How would you write the differential function for the object’s motion in #4?



Is possible to write a differential function for the object’s motion in #5? How would you have to do it?

|  |  |
| --- | --- |
|  |  |

|  |  |
| --- | --- |
|  |  |

|  |  |
| --- | --- |
|  |  |
|  |  |

|  |  |
| --- | --- |
|  |  |

1. Create your own scenario and determine the position-time graph and motion map to match this.

