

Moving Man - Acceleration vs. Time Graphs

Background – Remember graphs are not just an evil thing your teacher makes you create, they are a means of communication. Graphs are a way of communicating by using pictures and since a picture is worth a thousand words knowing how to make and interpret graphs will save you a lot of writing.



Learning Goals – The students will:

- Develop a general knowledge of “Velocity vs. Time” graphs and “Distance vs. Time” graphs
 - What graphs of a person standing still would look like
 - What graphs of a person moving away from an observer at a constant speed would look like.
 - What graphs of a person moving towards an observer at a constant speed would look like.
 - How differences in speed appear on the graphs

Procedure – Do the following activity using this web site

http://phet.colorado.edu/simulations/sims.php?sim=The_Moving_Man

Then click on “Run Now”

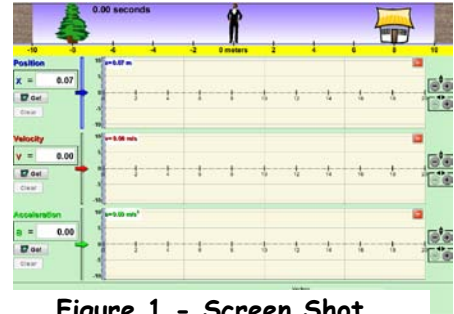


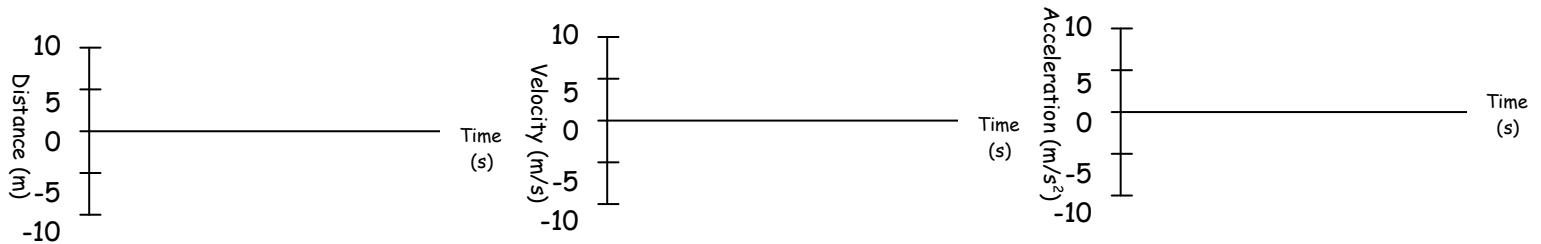
Figure 1 - Screen Shot

1. **Getting started.** After “The Moving Man” is open, your screen should look like Figure 1.
2. **Making observations.** By either clicking on the man or the slider cause the man to move back and forth and observe what shows up on the graphs. Using the axis provided below make sketches of Distance vs. Time, Velocity vs. Time and Acceleration vs. Time graphs for the actions described next to each axis.

A man moving from 0 to 10 at a slow steady pace.



A man moving from 0 to 5 m/s at a fast pace

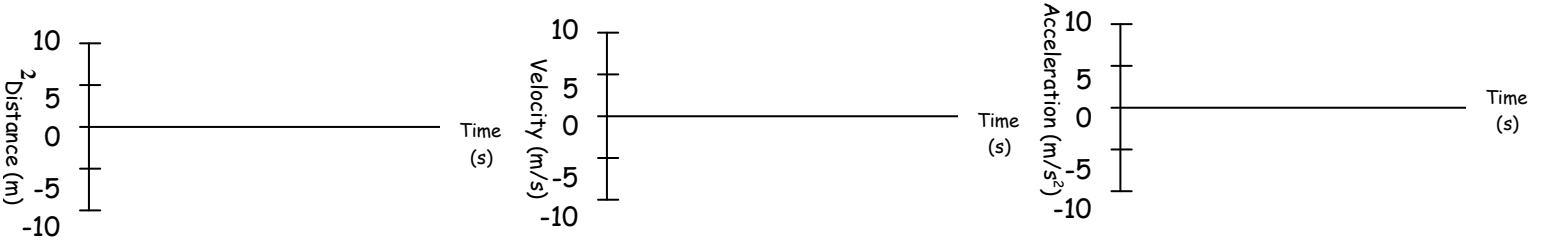


A man moving from 10 to -10 at -1 m/s²



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A man moving from -10 to 10 at a 1 m/s^2 .



A man moving from 0 to 10 at 0.5 m/s^2 and then -10 at -2 m/s^2



Apply what you learned. Look at the Distance vs. Time graph below and for the different parts of the graph that are marked by the dotted lines make the corresponding Velocity vs. Time graph directly below each part.

