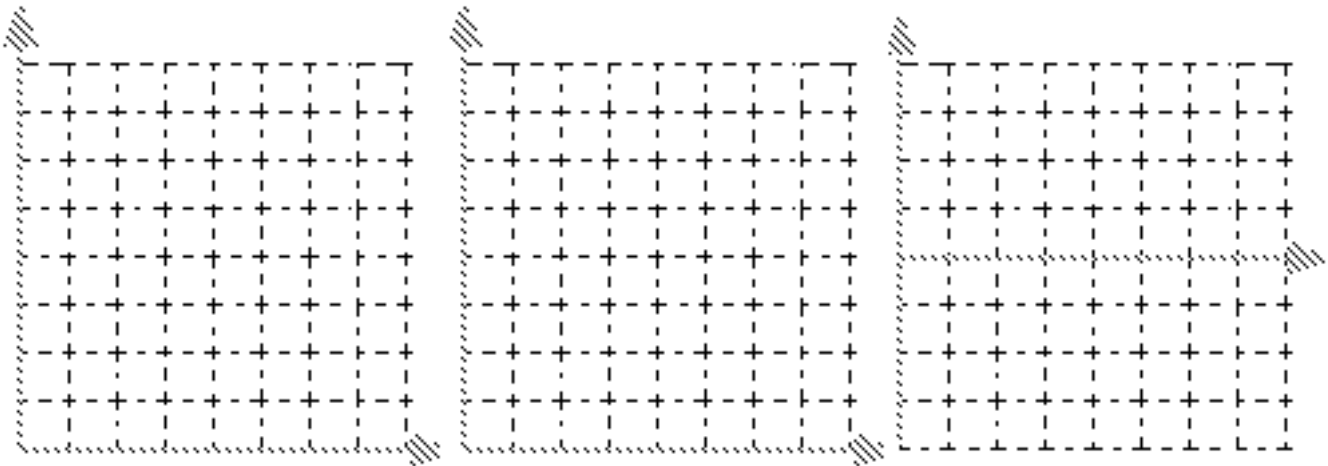


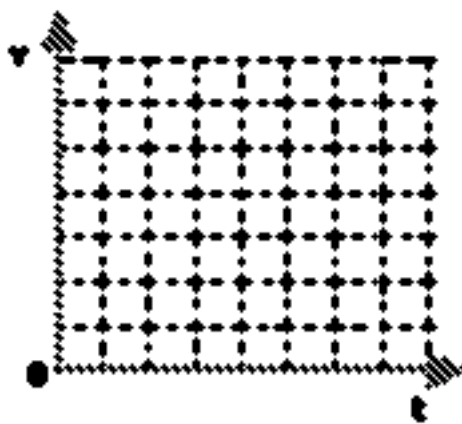
UNIT III: Worksheet 2

While cruising along a dark stretch of highway with the cruise control set at 25 m/s (~55 mph), you see, at the fringes of your headlights, that a bridge has been washed out. You apply the brakes and come to a stop in 4.0s. *Assume the clock starts the instant you hit the brakes.*

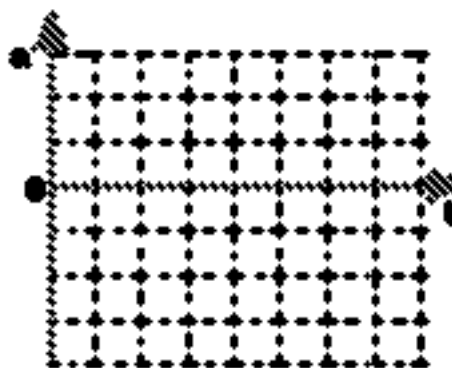
- Construct a motion map that represents the motion described above, including position, velocity, and acceleration. Clearly demonstrate how you can determine the direction (sign) of the acceleration from the motion map representation.
- Construct **qualitative** graphical representations of the situation described above to illustrate:
 - x vs. t
 - v vs. t
 - a vs. t



- Construct a **quantitatively accurate** v vs t graph to describe the situation.
- On the v vs t graph at right, graphically represent the car's displacement during braking.
- Utilizing the **graphical representation**, determine how far the car traveled during braking. (Please explain your problem solving method.)



- In order to draw the a vs t graph, you need to determine the car's acceleration. Please do this, then sketch a **quantitatively accurate** a vs t graph



- Using the equation you developed for displacement of an accelerating object determine how far the car traveled during braking. (Please show your work.)
- Compare your answers to 5 and 7.