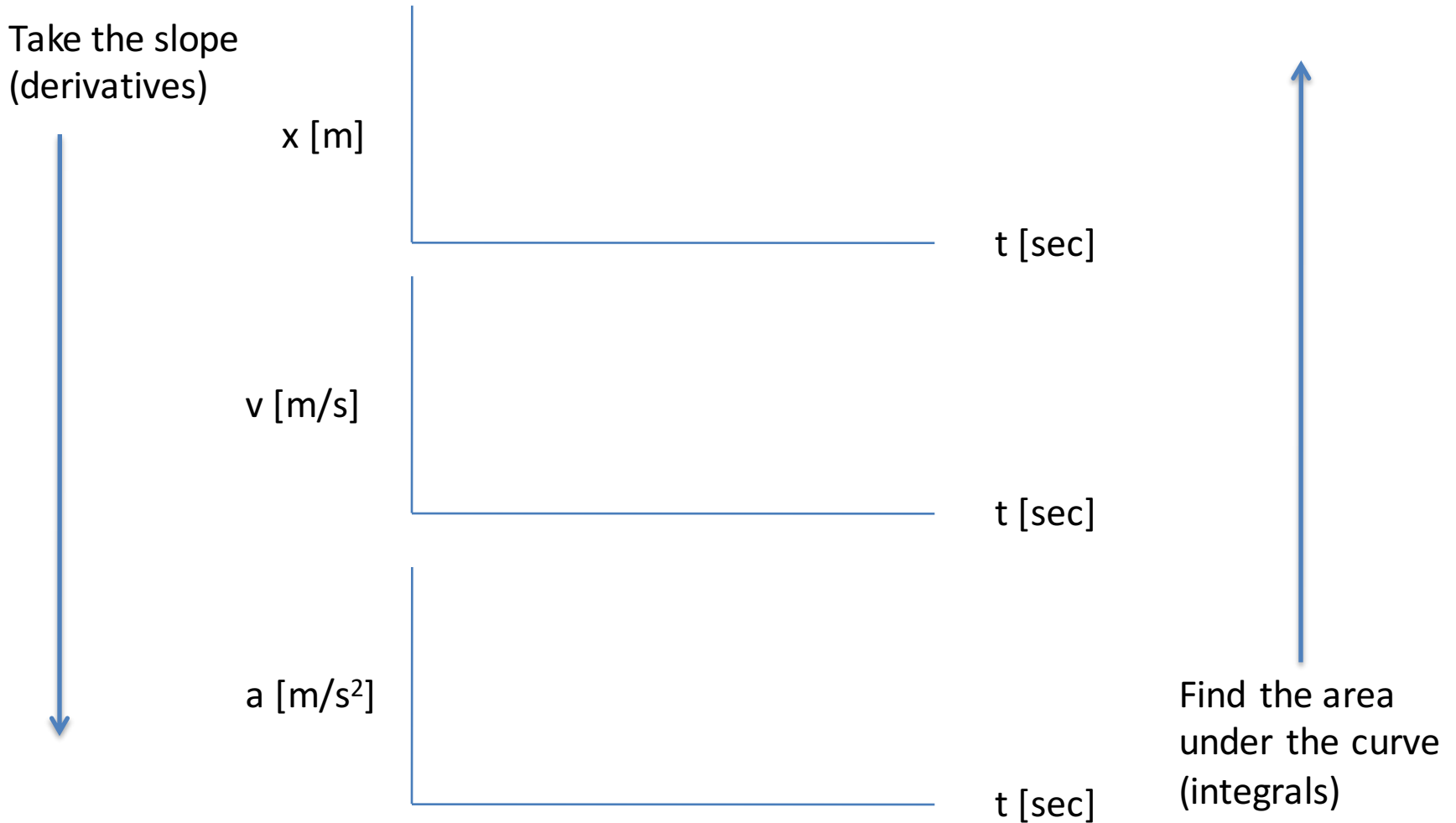
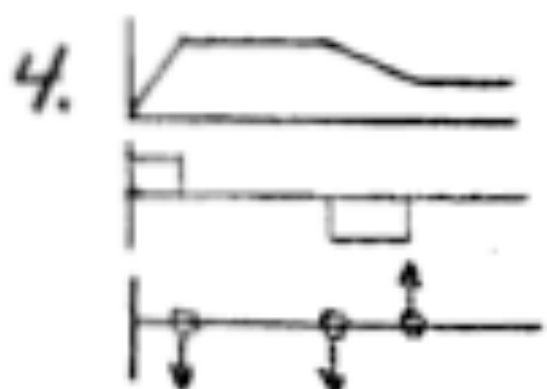
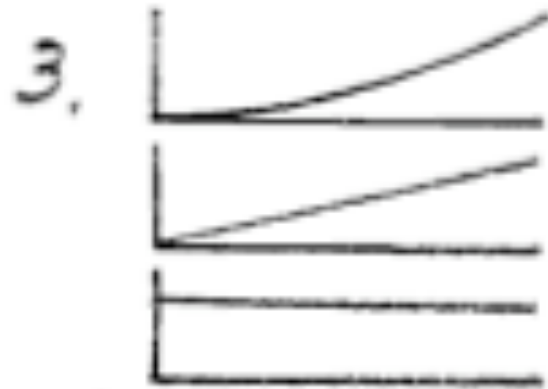
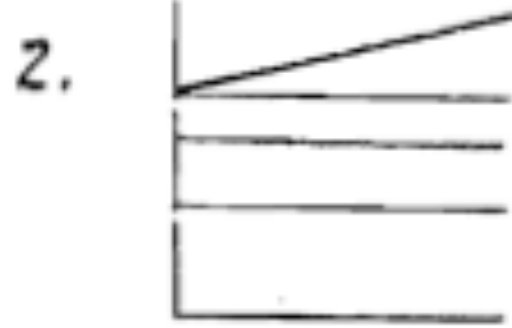
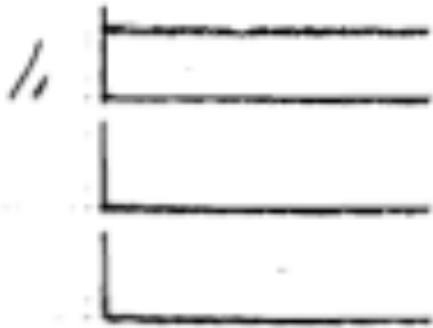


# Graphing Summary

**Graphing Key:** Time is always on the horizontal axis. The graphs will often be plotted in groups of three. X on top, then V, finally A.

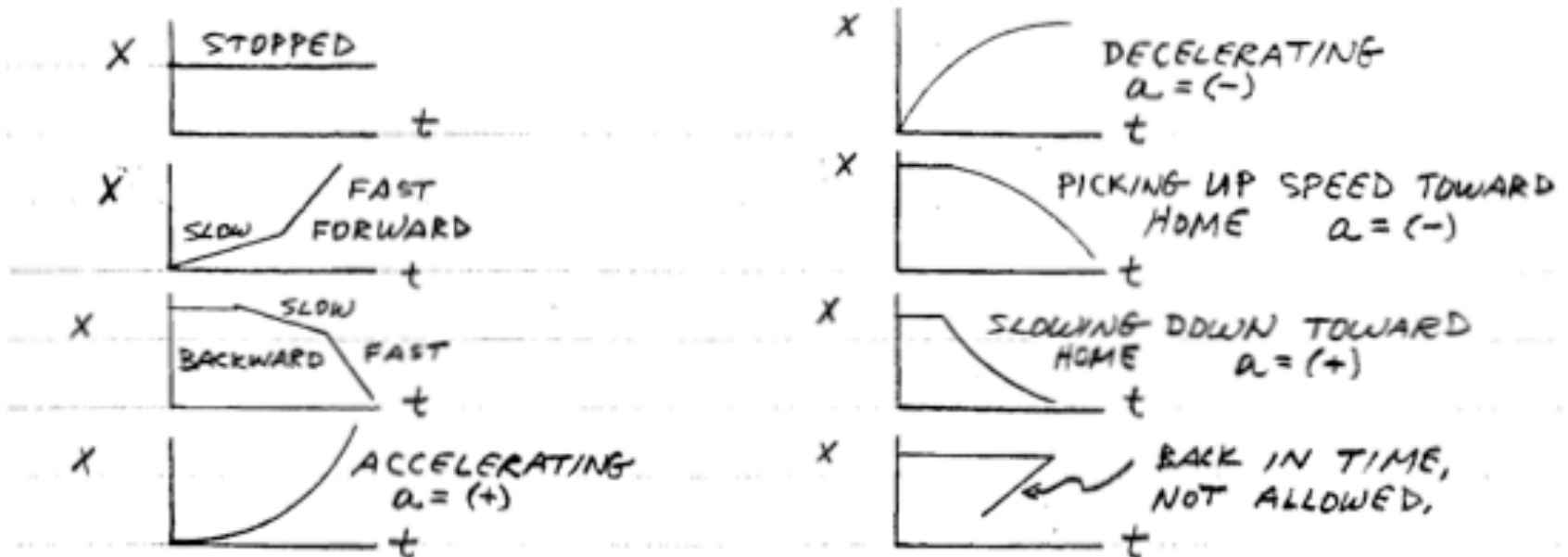


# Math: Taking the slope of the curve



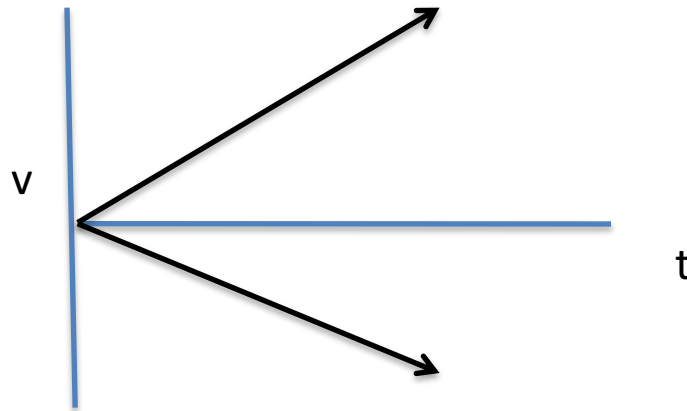
# Graphing Position vs. Time (x vs. t)

- slope = velocity
- Object is moving away from origin when slope is positive.
- Area under curve = no meaning
- To find average velocity between two times – read positions off graph then use:
 
$$\bar{v} = \frac{\Delta x}{\Delta t}$$
- To find average speed – determine total distance (account for backtracking) then use:
 
$$\bar{s} = \frac{d}{\Delta t}$$



# Graphing **Velocity vs. Time** ( $v$ vs. $t$ )

- slope = acceleration
- Area under curve = displacement
- Object is stopped when  $v = 0$  NOT when slope is zero.
- Object is moving away when the graph is above the x-axis (& towards when below the x axis).
- Object is getting faster when graph moves away from  $v = 0$ .  
(both graphs show increasing speed)



# Graphing **Acceleration vs. Time** (a vs. t)

- slope = no meaning
- Area under curve = change in velocity