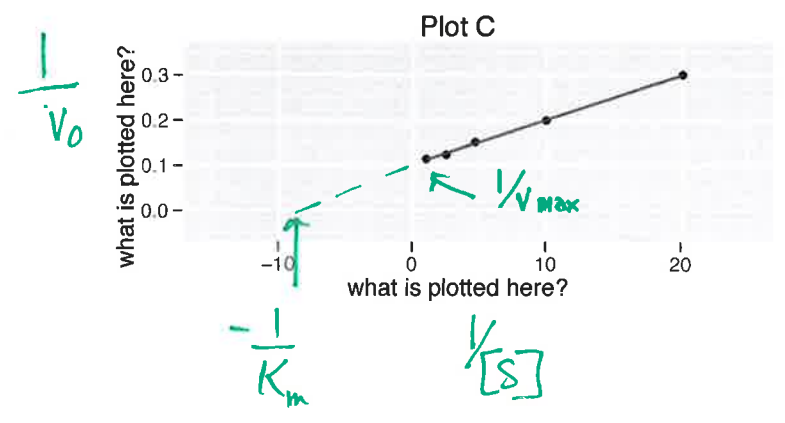
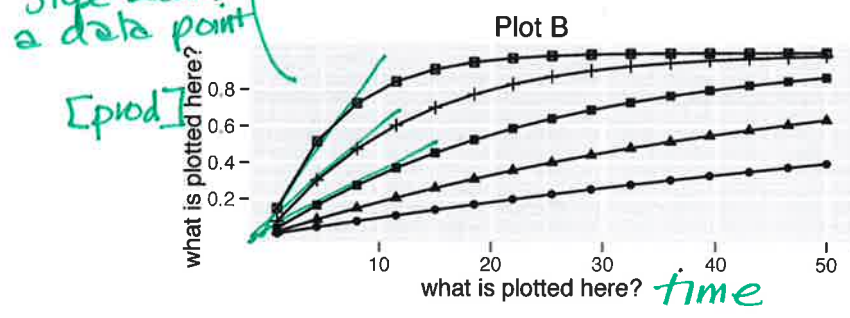
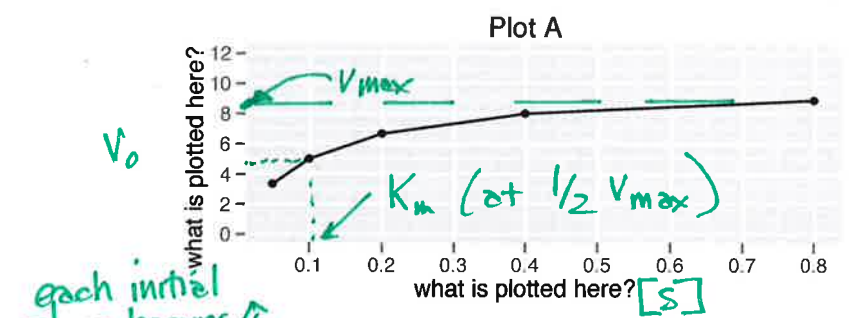


Understanding Enzyme Kinetics

- Define the following terms:
 - (a) the difference between k and K (generally)
 a rate constant, in the domain of kinetics
 - (b) K_m
 1. [S] req'd for $\frac{1}{2} V_{max}$ 2. A measure of the substrate affinity. thermodynamics
 - (c) k_{cat}
 the fastest an enzyme can go given all the substrate it can handle
 - (d) k_{cat}/K_m
 "catalytic perfection"
 - (e) the diffusion limit
 the maximum reaction rate for any reaction; corresponds to every collision between 2 molecules leads to a rxn
- From a thermodynamic perspective, what are the two components of ΔG ?
 energy change $\Delta H, \Delta S$
- What is the difference between ΔG and ΔG^\ddagger ?
 activation energy

The following graphs are the type that are typically produced in an enzyme kinetic study.

- Label the axes of each graph (6 places).
- Annotate each graph with any special points or lines that are important to the use and understanding of the graphs.
- Give the order in which one would create the graphs: B A C



each curve is for a different [S]

Michaelis-Menten double-reciprocal plot