Enzymes and Inhibition

Name ________________________________________________________

Michaelis-Mention Kinetics and Lineweaver-Burke Plots

Michaelis-Mention equation:

A Lineweaver-Burke plot is also known as a ____________________________ plot.

What pieces of information can you obtain from the plots below? Label where you would obtain these values on the plots below.
Sketch Lineweaver-Burke plots for competitive and non-competitive inhibition below showing both inhibited and uninhibited enzyme. Clearly label all axes and relevant points on the graphs.

**Competitive Inhibition**

**Non-competitive Inhibition**

How is apparent $V_{\text{max}}$ affected?
- Competitive Inhibition:

Non-competitive Inhibition:

How is apparent $K_M$ affected?
- Competitive Inhibition:

Non-competitive Inhibition:
Challenge Question: Enzyme Inhibition

A scientist is studying an enzyme that catalyzes the reaction $A \rightarrow B$. Regardless of how much $A$ is present, when a fixed amount of an inhibitor $C$ is added, the velocity of $A \rightarrow B$ is reduced by 20%.

• What type of inhibition explains this result? Explain why you chose this explanation
• Draw a plot of $V_0$ v. $[S]$ and a Lineweaver-Burke plot consistent with this observation showing the uninhibited enzyme and inhibited enzyme. Clearly label all axes and relevant points on the graphs.