

(Each problem must be completed on a separate page. All short answer questions must be typed. All math problems must show work.)

1. Use the following enzyme-catalyzed reaction data set to calculate the maximum velocity and the Michaelis constant of the enzyme using both the Lineweaver-Burk (L-B) method and least-squares curve fitting of the Michaelis-Menton (M-M) equation. Please do this in Excel and print out your worksheets, equations, and graphs.

[S] (mM)	Vo (uM/min)
1	122
2	297
4	403
6	550
8	676
10	761
12	821
14	854
16	889
18	912
20	965

2. Calculate the turnover number (in s^{-1}) for the enzyme from Question 1 (using the results from both L-B and M-M methods) if the total enzyme concentration was 5.20 nM.
3. Derive a velocity equation for an ordered bi uni enzyme system (*i.e.* two substrates and one product) using the steady-state assumption.