

CHEM 220 – Problem Set 9

1. Given the following data, determine the following:

Use This Data for The Following Questions							
Without Inhibitor		With Inhibitor 1		With Inhibitor 2		With Inhibitor 3	
[S]	V rxn	[S]	V rxn	[S]	V rxn	[S]	V rxn
1	0.243902	1	0.166667	2	0.136986	1	0.133333
0.5	0.1666667	0.666667	0.135135	1	0.111111	0.5	0.111111
0.333333	0.136986	0.5	0.111111	0.666667	0.095238	0.333333	0.095238
0.25	0.111111	0.4	0.095238	0.5	0.083333	0.25	0.083333
0.2	0.095238	0.333333	0.083333			0.2	0.074074
0.166667	0.083333					0.166667	0.066667

- using (and showing, i.e., attach it) a standard Michaelis-Menten (V vs S) plot, determine the V_{\max} of the reaction without inhibitor
- using (and showing, i.e., attach it) a standard Michaelis-Menten (V vs S) plot, determine the K_M of the reaction without inhibitor
- using (and showing, i.e., attach it) a standard Lineweaver-Burke plot, determine the V_{\max} of the reaction without inhibitor
- using (and showing, i.e., attach it) a standard Lineweaver-Burke plot, determine the K_M of the reaction without inhibitor
- How do the methods and values compare?

2. Using the additional data with inhibitors, determine (and attach your plot[s]) what kind of inhibitor each substance is compared to your Lineweaver-Burke plot from #1, above. (HINT: It helps to re-plot data without inhibitor WITH the inhibitor data – if you used Excel, this is no big deal.)