CHEM106 Quiz 5
Please show all equations, all substitutions, all units, and all work to receive any credit

1. Use these experimental data to find the rate law and rate constant for the reaction A + B → C

Experiment #	[A]	[B]	Initial Rate (M/sec)
1	0.020	0.100	1.0×10^{-5}
2	0.020	0.200	1.0×10^{-5}
3	0.060	0.100	9.0×10^{-5}

2. The rate constant k for a different reaction was found to be 2.0×10^{-5} M^{-1}/sec at a temperature of 298 K and 4.0×10^{-5} M^{-1} /sec at a temperature of 308 K. Calculate the activation energy for this reaction.

3. Plot, on the same graph, the reaction rates as a function of substrate concentration for an enzyme-catalyzed reaction for two situations: when there is no inhibitor present and when there is a competitive inhibitor present. Clearly label all key aspects of this diagram.

4. An enzyme catalyzed reaction with a specific substrate has a Michaelis constant of 2.5 mM. At what substrate concentration, in units of mM, would you expect that 1/3 of all enzyme active sites would be occupied with substrate molecules?