

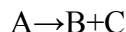
ChE 344
Week 7
Problem Set 11
Due Tuesday, February 19, 2013 (Lecture 12)

Individual Assignment

1. PLQ 12 -What is the solution to the following ODE $\frac{dC}{dt} + k_2C = C_0e^{-k_1t}$ At $t = 0$, $C = 0$. [Hint: See summary notes on the integrating factor and Appendix A.]

Group Assignment

1. P6-8_B (omit (d))
2. P6-11_B Parts (a) and (b) only
3. P6-13_C
4. P7-6_A (omit (c))
5. P7-15_B
6. If you did not finish In Class Problem 10, then continue and finish part (c) The irreversible liquid phase reaction



is carried out in a batch reactor. The following data were collected during the course of the reaction.

t (min)	0.0	0.5	1.0	2.0	3.0	4.0
C _A	2.00	1.63	1.41	1.15	1.0	0.89

Determine the order of reaction and the specific reaction rate using two methods to differentiate your data.

- (a) Use graphical technique (equal area differentiation) and explain when one would want to use the graph differential and the one advantage of it.
- (b) If you were to make additional runs to take additional data points, at what times would you measure the concentration? Explain.

- (c) Use regression to find the specific reaction rate and the reaction order of the data above.