**Homework I:**

**(use MS EXCEL in all tasks, copy each task in separate spreadsheet and solve)**

1. Plot time dependency of A, B, and C for first-order reaction A 🡪 2B+C. Integral equation for A is C=C0 exp(-kt) where C0=0.025 mol l-1, k=0.125 min-1. Evaluate half-time and third-time of the reaction.
2. The half-time of tritium is 13.6years.
3. Calculate a rate constant for decompositium of tritium. Assume a first-order reaction.
4. How long will 99.99\_ of the tritium disappear?
5. Plot time dependency of both the tritium concentration and the rate of reaction.
6. A first-order polymerization reaction is being run in a batch reactor. A concentration of 0.007 mol/liter of monomer is loaded into the reactor, and then a catalyst is added to initiate the reaction. Experiments show that the reaction is 30% complete in 10 minutes.
7. Calculate rate constant.
8. Calculate half-time.
9. How long will it také for the reaction to be 90% complete?
10. How would the time in c) change if you increased the concentration in the reactor to 0.16 mol/liter?
11. Plot concentration vs. time.
12. Repeat it all for a second-order reaction.
13. Reproduce the Example 3.A: „Fitting Data to Mono`s Law” using SM EXCEL.

I.e. see pp. 103-110 in book: R.I. Massesl: „Chemical Kinetics and Catalysis“, read the text, check the values, and reproduce plots (using MS EXCEL) Figs:3.A.1, 3.A.2, 3.A.3, 3.A.4, and 3.A.5.

**The result (i.e. \*.xls files send as \*.zip file to teacher via E/mail ).**