A Guide to Numerical Simulation in Excel

1. Start by placing the titles, the constants and the boundary conditions, that will be necessary for the calculations:

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Sheet1 ⊕ : 4	

2. Calculate the time and concentration in the second-step, according to Euler's method: $t_1 = t_0 + \Delta t \cdot 1$, $[C]_1 = [C]_0 - \Delta t \cdot k[C]_0$

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* Notice that placing the "\$" symbol in front of the column letter and row number of a cell in the Excel formula will cause the reference to that cell to be fixed. It is essential for the next steps....

3. Calculate the concentration in time t_1 according to the exact analytical solution, $[C]_1 = [C]_0 \cdot e^{-kt_1}$



4. Choose cells A3+B3+C3 and drag down, in order to calculate the values of the following time steps.



5. Choose the relevant columns and add a plot.



6. Modify the plot's appearance to your liking. Make sure both data series are visible and can be compared.



Good luck!