Question	Score:	Out of:	Comments:
1	5	5	The reaction equation is correctly identified and displayed, the code is well organized.
2	4	4	The ODE function created allows the computation of analytical solutions into the parameters and the analytical solution is correctly found. The graph is a very good element to include to show how the concentration of A and B's ODEs vary, however the report's explanation should be further supported by numerical and quantitative data from for example the graph and less qualitative observations. Use theory to support qualitative comments. Moreover, the steps for the derivation of the analytical solution could be included in the report.
3	8	10	ODE correctly solved using ode45, figure is plotted with all the correct visualization elements allowing an easy consultation and interpretation. The code is well organized and easy to follow. The discussion in the report should be more measurable and use the graph more to support findings. Less qualitative comments or please support them with theoretical explanations, examples of unclear statements are "absolute difference is always significantly small" (how small, include a margin or percentage), "almost certainly within a margin of error" (suggest a margin from the graph).
4	10	10	Correct code for Euler's 1st order algorithm, well organized code and efficient. The function is programmed in a general way as expected from the rubric. Visualization with all correct elements and is well presented. The code in the report is a nice addition.
5	8	10	Error calculations are correctly calculated, could have included more steps or the code in the report to show how algebra is implemented in the code. Or at least mention the functions used in the code. The graphs include all the correct elements and are well organized. I would like a more in depth analysis for the trends identified such as how do you know the function reaches stability at 10 steps or why 40 was the highest (obvious but it's a report so explain). Include trend line in graph b to show convergence tends to 1.
6	7	10	Code is simple, efficient and well structured. Visuals are insightful and all elements are present. Again analysis should use more data and measurable statements (for example y intercepts and explain why they are at such values, shape of the curve etc), use more specific words such as "exothermic" instead of "because as A reacts into B, it releases heat". Maybe include a graph showing the decrease in rate constant from the statement "temperature increases the reaction rate constant decreases, slowing down the rate of reaction" and mention the point of the graph where it can be noticed. Overall, use more the graphs to support arguments in analysis. Explain also how the python functions you use are relevant.

7	9	10	Code is correct, pretty and efficient. Visuals are well done. The code works for an arbitrary number of equations as required. Compare more between graphs from previous question. Explain also how the Python functions used are relevant for answering question.

8	6	10	Barely an explanation of how each explicit method works, what explicit means and why your code is advantageous. Code should have a "else" condition for unknown methods or errors.
			For example:
			``python
			else:
			        return 'Unknown method specified. Check documentation for supported methods' # In case an unknown method is specified
			``
			Include a visual for the midpoint rule integration.

9	7	10	Correct error analysis visuals, but little data analysis that is measurable and comparable and basic report comments on graphs.
10	6	10	Only used ode function not own solvers,- correct visuals. No report description of trends observed and little conclusions drawn.
11	9	10	Great report writing, great code and great visuals. Explain more the functions used in the code during the report explanation.

TIPS:

1. Talk more about the Python functions used, why you select them, how you implement it, how efficient compared to other methods to show your understanding.
2. More measurable statements in analysis, use more the quantitative data from the graphs instead of generally describing the trend only, mention y-intercepts, line shape, zeros, slopes etc.
3. Proof read as there are a few typos and punctuation issues.

TOPS:

1. Very well structured code.
2. Visuals are insightful and include all the required elements. Very easy to understand.
3. Great understanding of the course theory.