I. Requirements: Restate the problem specification and any detailed requirements in your own words.

This project requires that we implement a class for a complex number. We are required to implement a string constructor, a multiplication operator, and an input operator, just to name a few. The program is required to know how to read complex numbers with implicit imaginary numbers and scientific notation.

II. Design: How did you attack the problem? What choices did you make in your design, and why? Show class diagrams for more complex designs.

I decided to use regular expressions for this problem. Any other options would have been a bit more difficult in my estimation, so I thought that this was the better option.

III. Security Analysis: State the potential security vulnerabilities of your design. How could these vulnerabilities be exploited by an adversary? What would be the impact if the vulnerability was exploited?

This program does not seem to have any security vulnerabilities. I used all standard library functions so it should not have too many issues.

IV. Implementation: Outline any interesting implementation details in your solution.

This implementation is a simple concept. The only part of this implementation that is a bit different is the use of a regex to parse the complex number.

V. Testing: Explain how you tested your program, enumerating the tests if possible. Explain why your test set was sufficient to believe that the software is working properly, i.e., what were the range of errors for which you were testing.

I tested as many cases as I could think of. This included scientific notation, zero coefficients, and non-existent coefficients.

VI. Summary/Conclusion: Present your results. Did it work properly? Are there any limitations? NOTE: If it is an analysis-type project, this section may be significantly longer than for a simple implementation-type project.

This program seems to work properly. As far as I could tell there weren’t any limitations on what the code can do within its spec.

VII. Lessons Learned: List any lessons learned. For example, what might you have done differently if you were going to solve this problem again?

This was a parsing problem that was very easy to solve using regular expressions. I think I would do it the same way if I were to do it again.