Problem 1) In classes that you took earlier, you met problems that were difficult or impossible to solve analytically. Suggest at least three problems that are interesting for solving with a computer. Describe physics and **ALL** detailed equations needed to solve these problems. Please be as specific as needed. Later we may use these problems for midterm projects.

Problem 2) Prepare your computer for the class with a language of your choice. Most likely it will be one of these: C/C++, Python, or MatLab. (You can use more than one if you want.) Briefly describe software that you are using

Problem 3)

Write a program to solve the quadratic equation $ax^2 + bx + c = 0$ by using the quadratic formula to obtain roots:

$$x_\pm = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}. \tag{1}$$

Your program should also be capable to handle complex roots. Note that you don't have to use complex variables, but you may. Choose you way to input a, b, and c.

Problem 4)

Write a profram that calculates a series of Fibonacci numbers and checks which ones are prime numbers. Explore what is the largest Fibonacci number you may get with your code.