I.   Guiding Question/Thesis/Idea

Trigonometric functions are critical to mathematical ideas and computation and are often seen in higher level mathematics that are used in the sciences. These functions are often used to solve for the unknown length or angles in a geometric shape. Sine specifically is a trigonometric function that relates the ratio of opposite over hypotenuse of a right triangle. To calculate the sine of an angle in radians, I strive to create a program that computes sine in both radians and degrees utilizing libraries with at least 8 decimal places of accuracy using the maclaurin series.

II.   Method of Research

To begin with, I would like to fully familiarize myself with new libraries and how I can utilize them to implement a sine function that has 8 decimal places of accuracy. In terms of mathematics, I need to learn of the maclaurin series and how I can add that to my coding project. After that, I would like to figure out an organized way that I could begin the first draft of my code in which I work in sections. Lastly, I would like to code my entire program and simplify/debug where necessary. I will write a summative report about the functionality and components behind my project.

III.   Outcomes/Product

The final project in which I will conclude my project will be a program that calculates sine at any input the user chooses to insert with at least 8 decimal places of accuracy at minimum in which I will show my professor and explain my code thoroughly as well as submit a summative report on what and how my code was implemented.

IV.   Project Timeline

- **February 2:** Honors Project Proposal submitted.
- **March 1:** Learn about the different libraries, maclaurin series and how to implement sine functions through this library.
- **April 2:** Organize a way to work in sections when coding then create a first draft.
- **April 20:** debug/simplify where needed and make sure code runs properly and draft my summative report.
- **May 17:** Submit final draft of program and summative report to my professor.

I will check-in with my professor at least **once every three weeks** to discuss my progress, plans, and results as my coding project progresses.