Criterion E: Evaluation

Success Criteria:

Criterion:	Status:	Notes
Can create and edit functions	Part Met	Functions are premade
Functions have customizable function types, windows, patterns, and colors	Part Met	All met except custom pattern as the chart library did not allow it
Function can be displayed through a table of values	Met	Shows original and transformation
Functions can be displayed through a graph	Met	Through jFreeChart
The graph's window is customizable	Met	Domain and Range customizable
The function can be transformed with a, b, h, and k values	Met	All transformations work
They can be specifically set or set using a slide bar	Met	Slide bars also have user customizable range
Graph automatically refreshes while slide bar moves to appear to be animated	Met	Uses stateChanged event to refresh
Both the function's original and transformations can be displayed by themselves or together on the graph or table of values	Met	Controlled by toggle buttons
Specific x or y values of a function can be found from their corresponding y or x values respectively	Met	Under finding values
The user can set specific points for a function type of just those points connected together with lines	Met	Is the function type "Custom Point Entry"
Appropriate error handling for all math involved	Met	No math errors found
Appropriate error handling for all input fields	Met	No input errors found
User friendliness is at an appropriate level for client and high school math students to use and understand	Met	Users have understood how to use the program

Feedback from client after the final review (see appendix)



My client viewed the program through a detailed video¹. The program was able to graph and transform all of the functions tested. Both panels had everything the client wanted except for one feature thought of during this final review which was a way to control the interval for x values on the table². This "x-step" value was then added.

Overall my client really enjoyed the program and the features that set it apart from other graphing applications. Some features pointed out were the ability to customize the slider's ranges, find x values from y values and the custom point entry³.

Recommendations for Further Improvement

- Minor Improvements:
 - Add more default function types.
 - Add ability to use math symbols such as "e" or "pi".
 - Make clear directions understandable by a beginner in both math and computers to increase usability.
 - Make the program more visually appealing.
- Major Improvements:
 - Make all the function's types appear neatly and accurately within the window
 - Make a way to save and open the program state.
 - Add the ability to just directly type in equations with different math symbols.
 - Make the panels reformat for different window sizes.
 - Make an option to show three dimensional functions (so add z coordinate variable). This would also add the feature to add the transformation of rotating the function around an axis in 3D.

Criterion E Word Count: 481

Total Word Count: 1994

¹ Cameron Macky, final review by client, Bangkok, March 25, 2020, email paragraph 2, Appendix 4

² Cameron Macky, final review by client, Bangkok, March 25, 2020, email paragraph 5, Appendix 4

³ Cameron Macky, final review by client, Bangkok, March 25, 2020, email paragraphs 3 and 4, Appendix 4