Newton's Method Fractal Generator

1 Due Date

The program is due by Monday December 11. You will turn it in to me via email. Like you did for the Logistic Map Explorer, you will create a folder called `NewtonsMethod_yourLastName` and place all files associated with your project in this folder. Then you will zip up the folder and email the `zip` file to me.

2 Minimum Requirements

Meeting the minimum requirements earns a grade of B on this project. To get a higher grade you must go above and beyond these requirements in a meaningful way. The basic requirements:

1. Your program runs without crashing.
2. Your program is user-friendly - easy to understand how to use it!
3. You have a window that is clearly labeled/titled and is zoomable (in and out).
4. You draw the Newton's Method Fractal for the function $f(z) = z^3 - 1$ using an interesting color scheme.
5. You have inputs for the number of iterations to use.
6. You give the user the option to view the color-shades of the points that is a representation of how fast a n initial guess converges to one of the roots.
7. Your code is well-commented and easy to follow.

3 Extras

There are innumerable ways that you can go above and beyond in this project. I am primarily looking for creativity and curiosity from you. You are crafting a work of art here! Some possible suggestions for additional features might include, but is certainly not limited to:

a) The ability to look at additional functions (roots of unity? general polynomials? the possibilities are endless)

b) The ability to choose between different coloring schemes

c) Color schemes based upon other algorithms

d) Use of uniquely fast algorithms