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Numerical Methods in Physics and Astrophyiscs
Problem Set 2 - Problem 4: Fractals Through Newton-Raphson

To fulfill the necessary requirements for the assignment, the root finding program from the previous problem set is adapted to work with complex numbers and find the roots of a complex function. Two loops are then created to iterate what will be the pixels of a fractal image.

An initial program called `calc_data.c` is then created to log the requested data in a `.csv` file. This data is in a nicely readable format, showing $x_0, y_0, k(z), f(z)$, and $\log_{10}(n)_{\text{iterations}}$ as noted in the assignment. In order to create the final fractal images though, it is more practical to create a file listing only the necessary parameters and no additional strings, hence the creation of a slightly modified program called `fractal.c`.

Fractals were then plotted with gnuplot, using the `.gp` files. Images in the form of png follow the format `fractal_plot-<equation ID>_<image version>` where the equation IDs are used to group the equations.