Project: Newton Basins

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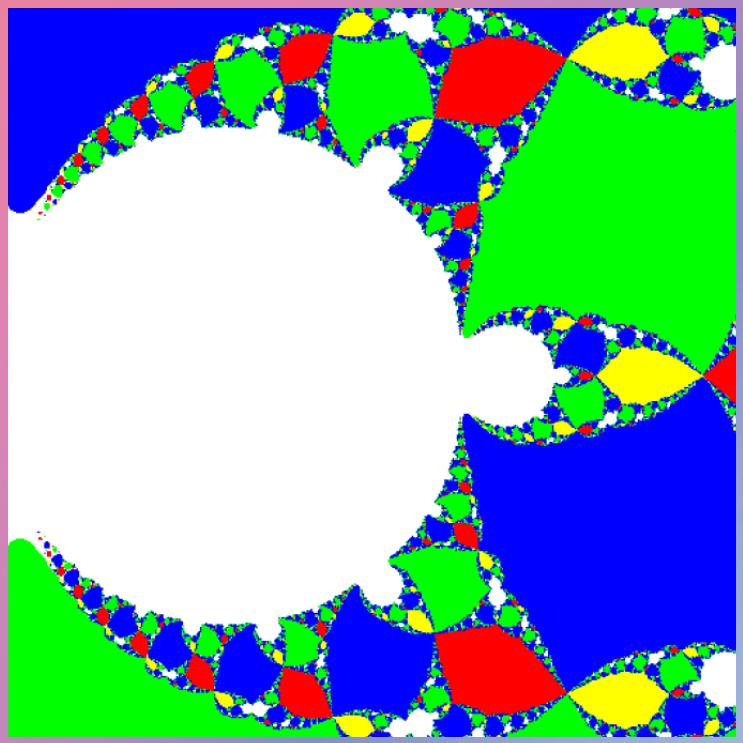
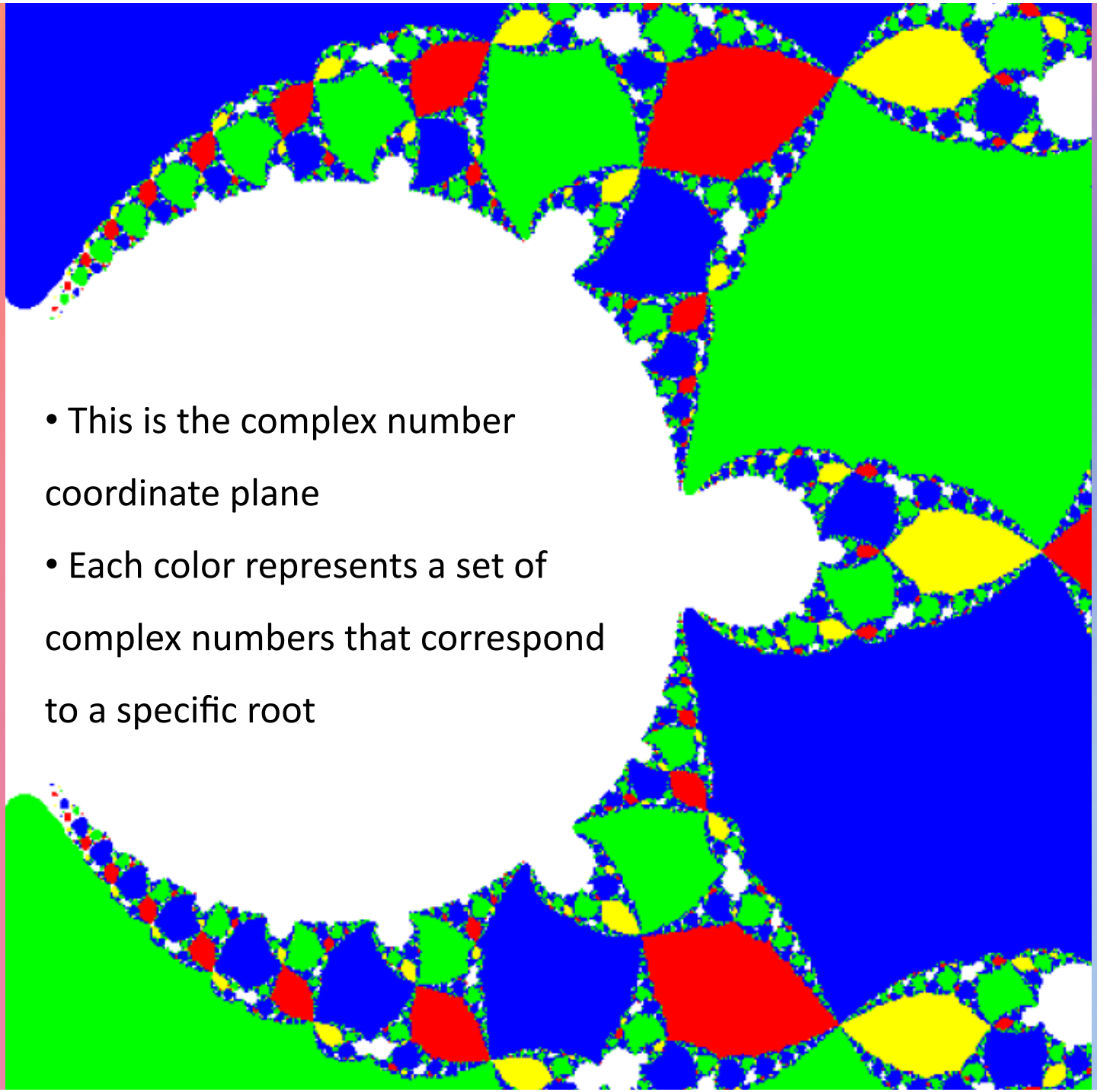
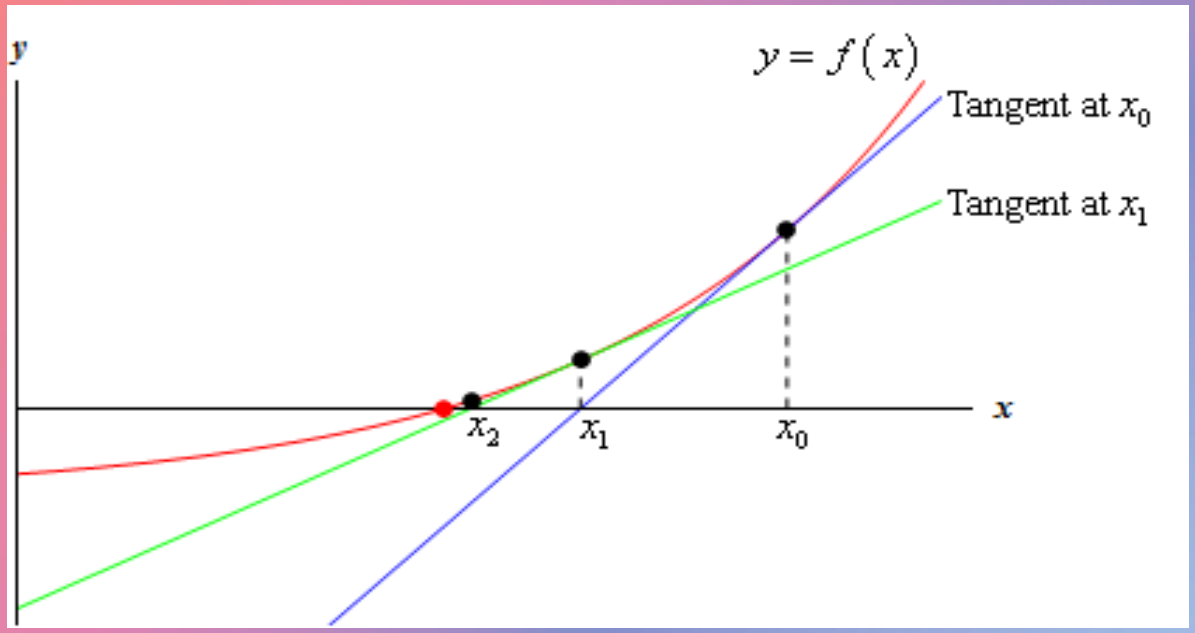
Goal



Create something that looks like this using Newton's Method and complex polynomials


• This is the complex number coordinate plane
• Each color represents a set of complex numbers that correspond to a specific root

Newton's Method



$$x = x - f(x)/f'(x)$$

As we did last week, use Newton's method to find the roots for each complex number in the coordinate system, and assign a color for each of the roots of the inputted quartic polynomial

MatLab Commands

- ‘find’ command returns the row number and column number of the terms in a matrix that satisfy specific criteria
- ‘polyval’ evaluates a polynomial, given a vector that defines the coefficients of a polynomial and an x value
- ‘meshgrid’ takes a row vector and translates each term downward into a column that is the same length as the original row; produces a square matrix
- ‘num2str’ turns a set of numbers into a string containing those numbers as characters