

CTA200H - Assignment 3, Question 3

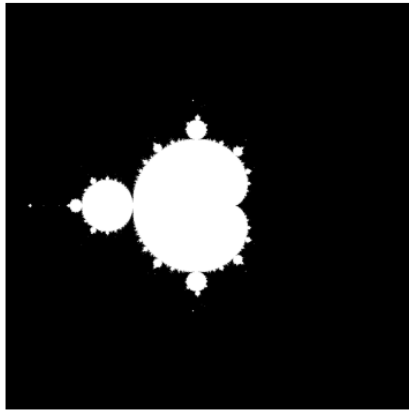
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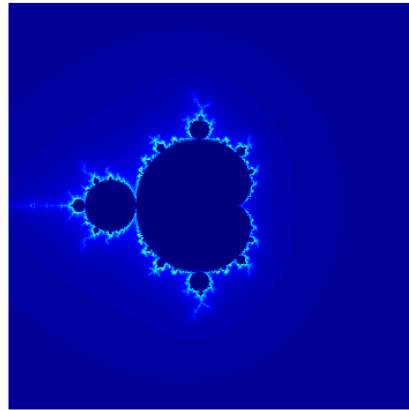
Question 1

This question has us generate an image containing the Mandelbrot set. For our iteration function, we set our threshold to 10 and the number of iterations to 100. For the image that illustrates whether the function stays bounded, we use binary values. For the image that illustrates at what iteration the function diverges, we normalize the values to $[0, 1]$. These are our results.

Mandelbrot - Within Threshold



Mandelbrot - Iteration Out of Bound



Question 2

This question has us analyze the Lorenz equations and reproduce some of his results from his paper. We defined the 3 functions within 1 Python function, `lorenz`. Then we used `solve_ivp` to solve the equations. These are our results.

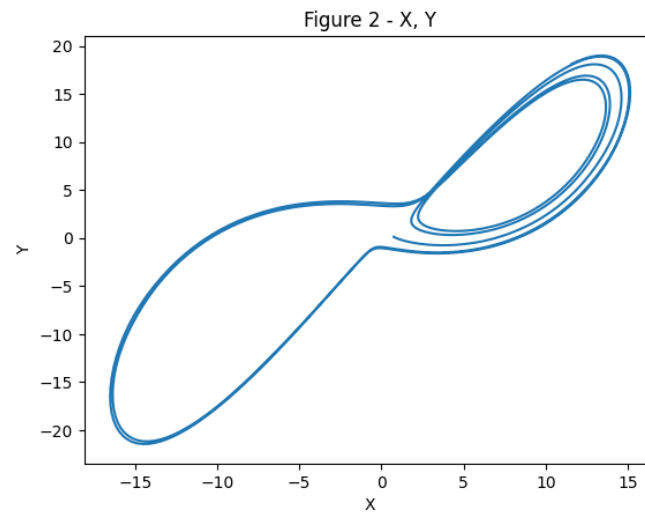
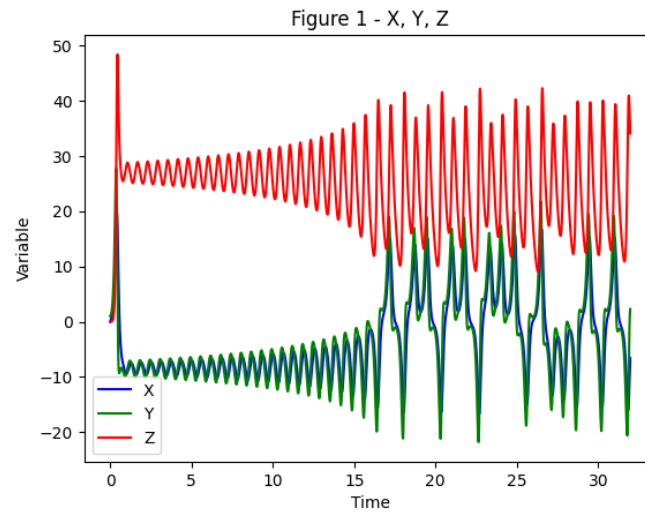


Figure 2 - X, Z

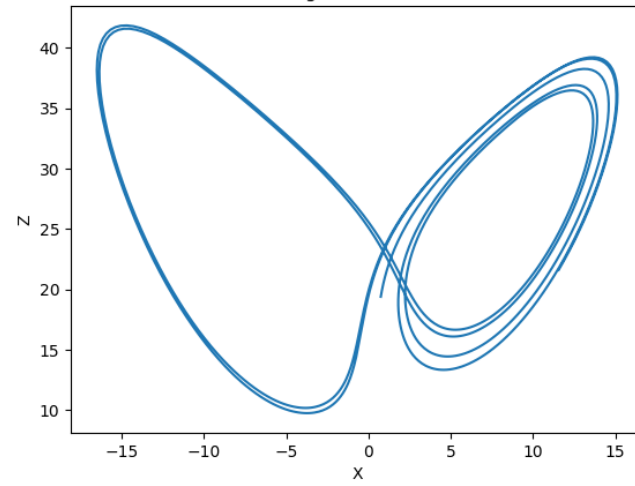


Figure 2 - Y, Z

