

Matlab Midterm 1 Part 1 Report

0716304 劉子齊

Midterm Problem 1.1

At the beginning, I asked for the [a b] input to get the value of the two variables, "a" and "b". Then to get the input "dx" that is greater or equal to 0, I constructed the second while loop in my program, which will not stop asking before getting the input that is available.

When the inputs are all set, I calculate the output $y(y)$ through the function given by the question. For last, I plotted the figure by the input $x(t)$ and the output $y(t)$, also applied the "hold on" command to make all the functions able to be plotted on the same figure.

Midterm Problem 1.2

First, I ask for an input "a" and check if it satisfies the required conditions. Then I asked the user for the selected option. After receiving all the inputs, I constructed a double loop. The outer for-loop is responsible to the variable "b", which makes me able to plot several plots. I also declared several arrays and the axis here.

In the inner for-loop, I applied the formula for finding solutions to polynomials, which is $((-b) \pm \sqrt{4ac})/2a$, to get the answer "x" for the polynomial given by the question. Then I plot it out on-by-one in an animation by the `pause()` and the "hold on" command through the vectors I stored the calculated answers in.

Midterm Problem 1.3

After obtaining the input "N" and the "option" the user chose, I calculated z_1 through the given x and y first, since we will need z_1 in both options. Then I constructed a double loop, which the outer loop is for drawing N z_1 curves as the user required, and the inner loop is responsible for calculating z_2 correctly.

In the inner loop, I divided the equation of z_2 into two parts and calculate them separately first, then multiply them after that. The last, I plotted the curve(s) for z_2 according to the option chosen by the user. Also, to make it animated, I applied the `pause()` function.