Matlab Midterm 1 Part 1 Report

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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)± √(4ac))/2a, to get the answer “x” for the polynomial given ny 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 z1 through the given x and y first, since we will need z1 in both options. Then I constructed a double loop, which the outer loop is for drawing N z1 curves as the user required, and the inner loop if responsible for calculating z2 correctly.

In the inner loop, I divided the equation of z2 into two parts and calculate them separately first, then multiply them after that. The last, I plotted the curve(s) for z2 according to the option chosen by the user. Also, to make it animated, I applied the pause() function.