Mat lab midterm 1-1 report 109550020 胡景竑

This report is written for three problem, one page for each.

Problem 1.1 is to plot equations. At first, we need to build up an infinite while-loop and ask for inputs a and b, if both of the inputs are 0 then end the program, otherwise ask for dx, then use the inputs to construct the given equation, and use the equation to plot the line.

Structure Plan

Step 1

Ask for input a, b.

Step 2

Check if a and b are > 0, otherwise end the program.

Step 3

Ask for input dx.

Step 4

Use the inputs to construct the equation.

Step 5

Plot the result of equation. Go back to step 1.

Problem 1.2 need to solve an equation of x first, using formula solution approach to find the sequence of x, and plot by the two roots of x. Finally, set the window region base on the demand input.

Structure Plan

Step 1

Ask for input a.

Step 2

Check if a is > 0, otherwise end the program.

Step 3

Ask for input option.

Step 4

Use the input a to construct the equation.

Step 5

Solve equation of x (using formula solution approach).

Step 6

Plot the two roots of x respectively.

Step 7

Set the window to determined size as the input option. Go back to step 1.

Problem 1.3 is to approximate an equation using Taylor series and plot the result base on the given input to determine how many terms of the series to calculate, and this has two kind of plotting, step by step (increase one term each time) or just plot the final result. The main structure is also in an infinite while-loop.

Structure Plan

Step 1

Ask for input N.

Step 2

Check if N is > 0, otherwise end the program.

Step 3

Ask for input option.

Step 4

If option = 1, loop for N times to plot the results, and increase one term ever loop.

Step 5

Otherwise, construct the final N terms result and plot.

Step 6

Go back to step 1.