

Monday 13 October - Class Session 14

Homework:

Read Budny: Sec 4.15

Programming Assignment 6: Due Monday 20 October

Class Activities:

Modify your script from Session 13 to perform the following

1. First function to ask user for type function (string, m-file, or inline), then get function (or function name if m-file), domain of interest, and annotation information. If string, or inline, create negative function by appropriate concatenation without asking user for more info. If m-file, ask user for negative function m-file name.
Needs: nothing
Returns: function type, function name, negative function name, domain, xtitle, ytitle, graphtitle
2. Displays an annotated plot of the function in the desired domain.
Needs: function name, domain, xtitle, ytitle, graphtitle
3. Displays a menu asking what type of analysis with zeros, minima, maxima, area between bounds, or show cumulative area on plot as buttons.
4. Uses a switch-case structure with the menu response to
 - a. Find as many zeros as desired and reports each zero found in command window
Needs: function name
Returns: vector of found zeros in ascending order
 - b. Find as many minima as desired and reports each minima found in command window
Needs: function type, function name
Returns: vector of x-minima location and vector of corresponding minima
 - c. Find as many minima as desired and reports each minima found in command window
Needs: function type, function name
Returns: vector of x-minima location and vector of corresponding minima
 - d. Perform many integrations as desired, report domain and value of each integration performed in command window, and compiles a matrix with three columns with the first two columns corresponding to the domain and the third column corresponding to the integral value for the domain. User is to be asked

what type of integration (trapezoid or quadl) to use. If trapezoid, user is to be asked how many intervals to use.

Needs: function type, function name

Returns: matrix of integrations

e. Display the cumulative integral of the current function on top of the function display

Needs: function type, function name

Returns: nothing

5. After finding as many of desired option, returns to step 3.

6. After working with current function, asks whether analysis of another function is desired, and if so, returns to step 1.

Group assignment:

Turn in a copy of your script.