07.06.2016

MATLAB

**Mathematical Methods**

**Summer 2016**

***Rules of Submission:***

1. To submit the assignment: Make script for each problem and then submit the scripts
2. Make documentation with the results and code, then submit the doc file along with the scripts
3. Submit via E-mail by due date
4. Do not copy from other groups, it will be checked very strictly
5. If you need any help, please contact me in the office hour mentioned in the course outline before the deadline of submission

Problems:

1. Make an inline function . Plot it using vectors and

. What is wrong with this graph?

2. Determine the value of the expression , where  and

.

3. Use MATLAB to calculate the expression  where .

4. Calculate the expressions : , , , , 

and . [ Hint: ]

5. Create two vectors running from one to six and from six to one. Then find the addition,

subtraction, multiplication, division and exponential of two.

6. Set up a vector which contains the values from zero to one in steps of one tenth.

[Hints: i) Using colon operator, ii) Using ‘linspace’ function]

7. Construct the polynomial for values of  from minus one to one in

steps of .

8. Construct the function  for values of  from one to two in steps .

9. Construct the function  for values of  from one to three in steps of

. [Hints: you can use the idea of intermediate functions]

10. Plot the polynomial  between  and . (Use fifty points of x)

[Hints : c = [1 0 1 0 -1]; ]

11. Find the size of a array.

[Hints : size(x)]

12. Construct the function  as a inline function on the set of points  to

 in steps of and give the value of f(x) at ,  and .

13. Extract the various parts of the array  such as extract the whole of

x, first half of x, and even indices only.

**Program and script:**

1. Write a script to plot a function of two variables , .

[Hints: First write a function for a inline function and then into the script use this function.]

1. Write a function to plot a function of two variables , .
2. Write a function to construct the squares and cubes of the elements of a vector.
3. Write a function to find the sum of the squares of the numbers and then write a script.
4. Write a script to plot the quadratic  from  and in steps of 
5. Write a function to Calculate pi by successive approximations to the area of a circle. No subroutines, all one big program.
6. Write a function to Same program 6, now with main loop and a single subroutine (area\_inside), all in one source code file.
7. Write a function to same program 6, now Main program requires external **area\_inside.m** file