Sudhanshu Kumar	Roll No. 201010	Section J9

ESO208

PROGRAMMING ASSIGNMENT: 3

Problem 1:

Input file

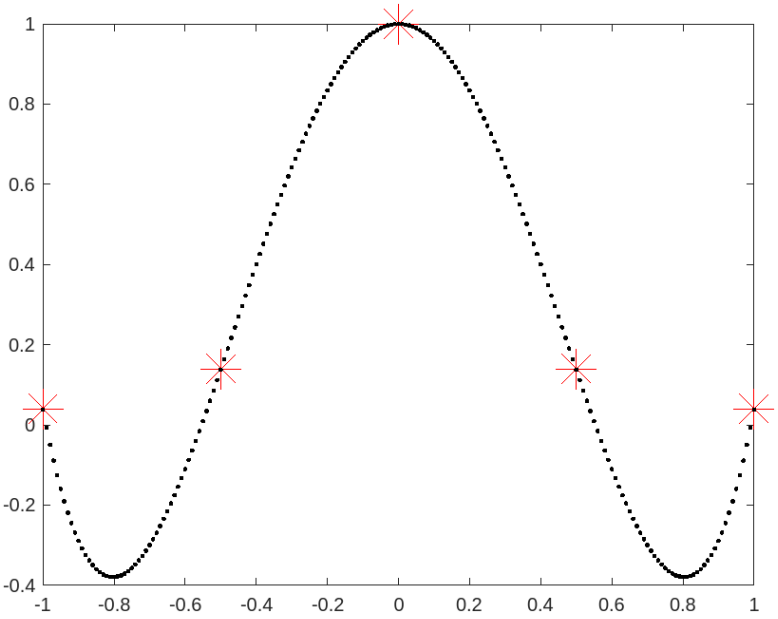
Input (*n*+1), *x* and *y*
5
-1.000 0.0385
-0.500 0.1379
0.000 1.0000
0.500 0.1379
1.000 0.0385

Number of points where function has to be evaluated, *m*, and values of *x**
4
-0.8000
-0.2000
0.2000
0.8000

Output

Lagrange Polynomial Method
(X,Y) is
-0.800000 -0.379336
-0.200000 0.834211
0.200000 0.834211
0.800000 -0.379336

Figure

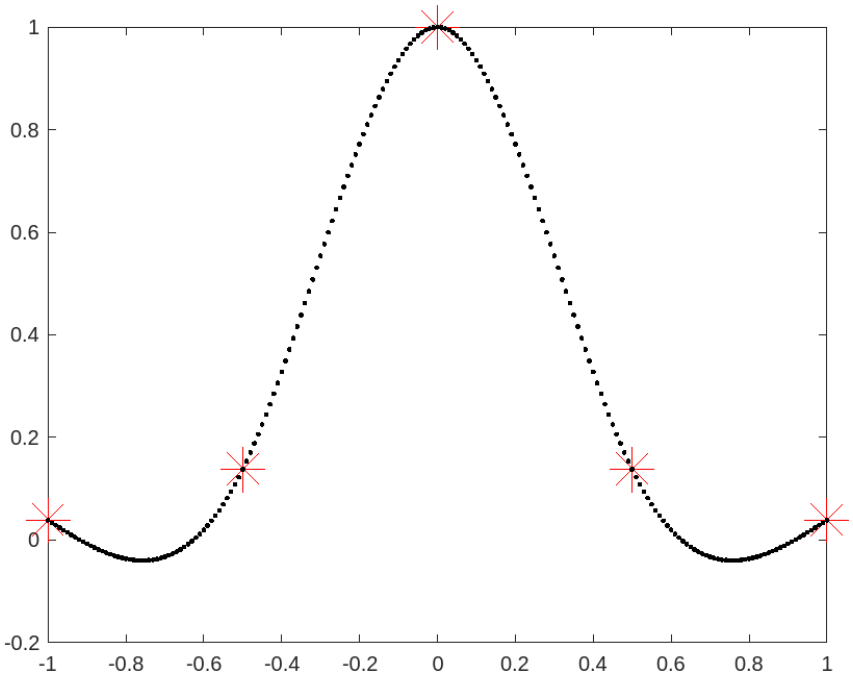


Natural Cubic Spline Method

(X ,Y) is

-0.800000 -0.036340
-0.200000 0.771569
0.200000 0.771569
0.800000 -0.036340

Sample Figure



Problem 2:

Input file

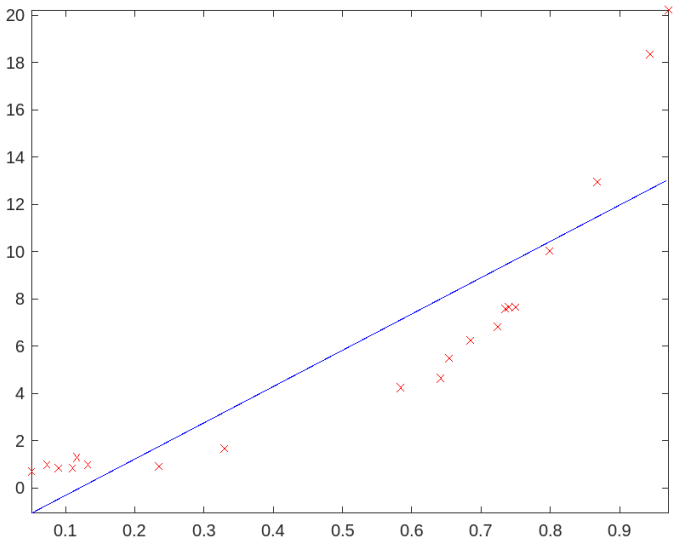
20

0.051	0.687
0.073	0.983
0.089	0.857
0.798	9.997
0.943	18.345
0.684	6.233
0.132	0.994
0.723	6.805
0.11	0.845
0.117	1.278
0.641	4.622
0.329	1.633
0.654	5.462
0.749	7.621
0.583	4.249
0.74	7.61
0.235	0.935
0.735	7.564
0.971	20.224
0.867	12.94

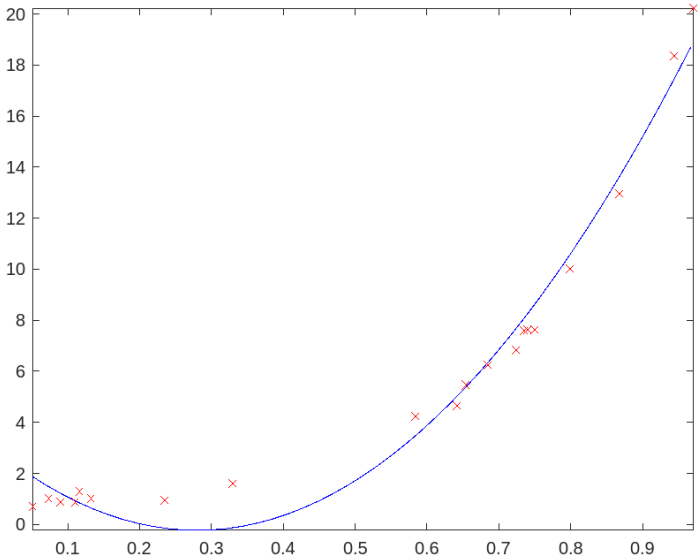
Output

Linear :

Coefficient are:
-1.859589
15.363438
R-sq is= 0.761

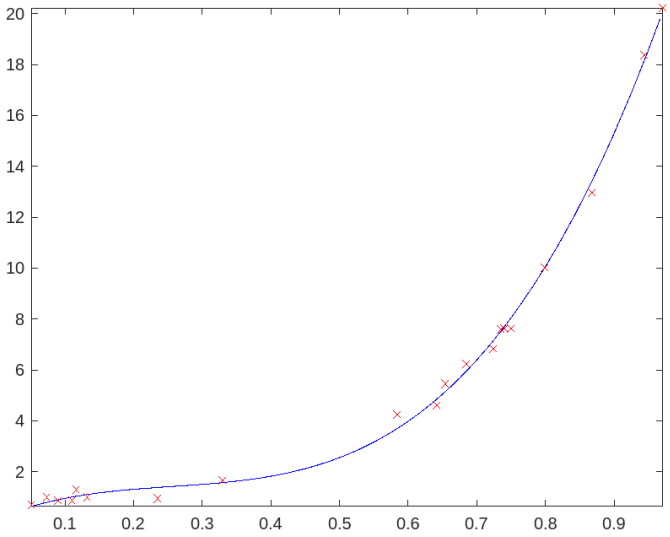


Quadratic:
Coefficient are:
2.917007
-22.465799
40.109322
R-sq is: 0.980



Cubic:
Coefficient are :
0.154966
11.192300
-36.585222
47.596476

R-sq is : 0.998



Quartic:

Coefficient are:
1.027082
-3.744007
28.959217
-52.383390
49.055647
R-sq is: 0.999