Lecture 6 Terminal Results

Disclaimer: Can't guarantee results on convergence and error.

Bisection

k	xmin	xmax	dx	C	e
Result:					
1	0	1.57	1.57	1.57002e-05	1.57
2	0	0.785	0.785	0.5	0.785
3	0.3925	0.785	0.3925	0.5	0.3925
4	0.58875	0.785	0.19625	0.5	0.19625
5	0.686875	0.785	0.098125	0.5	0.098125
6	0.735938	0.785	0.0490625	0.5	0.0490625
7	0.735938	0.760469	0.0245313	0.5	0.0245313
8	0.735938	0.748203	0.0122656	0.5	0.0122656
9	0.735938	0.74207	0.00613281	0.5	0.00613281
10	0.739004	0.74207	0.00306641	0.5	0.00306641
11	0.739004	0.740537	0.0015332	0.5	0.0015332
12	0.739004	0.739771	0.000766602	0.5	0.000766602
13	0.739004	0.739387	0.000383301	0.5	0.000383301
14	0.739004	0.739196	0.00019165	0.5	0.00019165
15	0.739004	0.7391	9.58252e-05	0.5	9.58252e-05
16	0.739052	0.7391	4.79126e-05	0.5	4.79126e-05
17	0.739076	0.7391	2.39563e-05	0.5	2.39563e-05
18	0.739076	0.739088	1.19781e-05	0.5	1.19781e-05
19	0.739082	0.739088	5.98907e-06	0.5	5.98907e-06
20	0.739085	0.739088	2.99454e-06	0.5	2.99454e-06
21	0.739085	0.739086	1.49727e-06	0.5	1.49727e-06
22	0.739085	0.739086	7.48634e-07	0.5	7.48634e-07
23	0.739085	0.739086	3.74317e-07	0.5	3.74317e-07
24	0.739085	0.739085	1.87159e-07	0.5	1.87159e-07
25	0.739085	0.739085	9.35793e-08	0.5	9.35793e-08
26	0.739085	0.739085	4.67896e-08	0.5	4.67896e-08
27	0.739085	0.739085	2.33948e-08	0.5	2.33948e-08
28	0.739085	0.739085	1.16974e-08	0.5	1.16974e-08

Secant

k	x	dx	C	e
Result:				
1	0	0.611084	2.02382e-07	e
2	0.611084	0.16043	0.356289	0.0183809
3	0.771515	-0.0333928	0.647275	0.00262668
4	0.738122	0.000956512	0.235707	8.31394e-06
5	0.739078	6.78604e-06	0.528322	2.74352e-09
6	0.739085	-1.44383e-09	0.340641	3.08677e-15
7	0.739085	2.18912e-15	0.459044	1.15432e-24

0.739085

False Position

k	xmin	xmax	dx	C	e
Result:					
1	0.611084	1.57	-0.611084	-inf	0
2	0.723286	1.57	-0.112202	0.183611	0.0252349
3	0.737269	1.57	-0.0139826	0.12462	0.00254754
4	0.738878	1.57	-0.00160954	0.11511	0.000264445
5	0.739062	1.57	-0.000183407	0.11395	2.84583e-05
6	0.739082	1.57	-2.08747e-05	0.113817	3.12532e-06
7	0.739085	1.57	-2.37557e-06	0.113801	3.47099e-07
8	0.739085	1.57	-2.70339e-07	0.1138	3.88071e-08
9	0.739085	1.57	-3.07645e-08	0.1138	4.35734e-09
10	0.739085	1.57	-3.50098e-09	0.113799	4.90666e-10
11	0.739085	1.57	-3.9841e-10	0.113799	5.53655e-11
12	0.739085	1.57	-4.53388e-11	0.113799	6.25669e-12
13	0.739085	1.57	-5.15954e-12	0.1138	7.07855e-13
14	0.739085	1.57	-5.87197e-13	0.113808	8.01606e-14
15	0.739085	1.57	-6.68354e-14	0.113821	9.08518e-15
16	0.739085	1.57	-7.54952e-15	0.112957	1.02188e-15
17	0.739085	1.57	-8.88178e-16	0.117647	1.20108e-16
18	0.739085	0.739085	0.830915		

Estimated converging constant 0.119121
0.739085

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Ridder
             k              x             dx              C              e
Result:
             1       0.736457       9.99e+99              C              e
             2       0.739085     0.00262776              C              e
             3       0.739085    2.38828e-07              C              e
             4       0.739085     5.1158e-12              C              e
             5       0.739085    2.22045e-16              C              e
0.739085

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Newton
             k              x             dx              C              e
Result:
             1              0             -1    1.0002e-08              e
             2              1       0.249636       0.249636      0.0155569
             3       0.750364       0.011251       0.180541    3.16001e-05
             4       0.739113    2.77575e-05       0.219281     1.9234e-10
             5       0.739085    1.70123e-10       0.220802    7.22496e-21
             6       0.739085              0              0              0
Supremum C 0.249636
0.739085
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