

Integration Test Results

Results

Method	Exact	Romberg	Simpson	Lobatto	TanhSinh	G7K15	G15K31	G30K61	G49K99
f1	2,350402	2,350402	2,350402	2,350402	2,350402	2,350402	2,350402	2,350402	2,350402
f2	1,682942	1,682942	1,682942	1,682942	1,682942	1,682942	1,682942	1,682942	1,682942
f3	-2,518199	-2,518199	-2,518199	-2,518199	-2,518199	-2,518247	-2,518199	-2,518199	-2,518199
f4	1,570796	1,570796	1,570796	1,570796	1,570796	1,570904	1,570808	1,570798	1,570797
f5	0,735000	0,734942	0,735000	0,735000	0,006026	0,729815	0,782954	0,757116	0,724529
f6	1,785398	1,785398	1,785398	1,785398	1,785398	1,785452	1,785404	1,785399	1,785398
f7	2,828427	NaN	NaN	?	2,828427	2,763828	2,797264	2,812606	2,818677
f8	12,034539	12,052206	12,034539	12,034539	12,034539	8,334189	10,050636	11,329626	11,849609
f9	0,000000	-8,80E-18	0,000000	-1,52E-15	0,000000	0,000000	0,000000	0,000000	0,000000
f10	1,500000	1,500000	1,500000	1,500000	1,500000	1,501369	1,499899	1,499973	1,500031

Error

Method	Exact	Romberg	Simpson	Lobatto	TanhSinh	G7K15	G15K31	G30K61	G49K99
f1	0,00E+00	1,51E-15	0,00E+00	0,00E+00	1,13E-15	1,89E-16	0,00E+00	0,00E+00	3,78E-16
f2	0,00E+00	9,37E-15	1,32E-16	1,32E-16	1,32E-16	1,32E-16	1,32E-16	0,00E+00	2,64E-16
f3	0,00E+00	2,47E-15	1,76E-16	3,53E-16	8,82E-16	1,88E-05	7,80E-10	0,00E+00	0,00E+00
f4	0,00E+00	1,66E-07	0,00E+00	3,11E-15	2,83E-16	6,86E-05	7,64E-06	9,98E-07	2,34E-07
f5	0,00E+00	7,92E-05	1,60E-13	2,66E-12	9,92E-01	7,05E-03	6,52E-02	3,01E-02	1,42E-02
f6	0,00E+00	7,32E-08	0,00E+00	1,37E-15	1,24E-16	3,02E-05	3,36E-06	4,39E-07	1,03E-07
f7	0,00E+00	NaN	NaN	?	3,65E-09	2,28E-02	1,10E-02	5,59E-03	3,45E-03
f8	0,00E+00	1,47E-03	5,71E-12	1,10E-13	9,27E-14	3,07E-01	1,65E-01	5,86E-02	1,54E-02
f9	0,00E+00	-8,80E-18	0,00E+00	-1,52E-15	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
f10	0,00E+00	0,00E+00	0,00E+00	1,63E-15	1,92E-08	9,13E-04	6,72E-05	1,78E-05	2,10E-05

Number of function evaluations

Method	Exact	Romberg	Simpson	Lobatto	TanhSinh	G7K15	G15K31	G30K61	G49K99
f1	1	16385	49789	425	117	15	31	61	99
f2	1	16385	38249	395	59	15	31	61	99
f3	1	16385	211037	2075	117	15	31	61	99
f4	1	16385	290113	2975	57	15	31	61	99
f5	1	16385	401	455	73	15	31	61	99
f6	1	16385	145489	1445	59	15	31	61	99
f7	1	16385	1821545	10085	7457	15	31	61	99
f8	1	16385	1344784533	2285	233	15	31	61	99
f9	1	16385	1823089	11495	3	15	31	61	99
f10	1	16385	109	245	7141	15	31	61	99

0 – No convergence

Precision = 10^{-14}