

Weights for fitting polynomial trends

The following tables are independently computed on the lines of those in Dudley J. Cowden, *Weights for fitting polynomial secular trends*, Technical Paper No. 4, School of Business Administration, University of North Carolina, 1962. Cowden gives values up to $N = 25$, and also values for even N . Similar tables can be found in M G Kendall, *Time-Series*, London: Griffin 1973 and 1976, Appendix A (see also his Section 3.9 and 3.10, pp. 37–38).

Except in one or two early tables, the tables give the weights required to fit at one end of the series, those for the other end being given by symmetry. For example, for fitting a straight line (a simple moving average) to nine points the weights for the first point are $\frac{1}{45}[17, 14, 11, 8, 5, 2, -1, -4, -7]$. Those for the second point are $\frac{1}{180}[56, 47, 38, 29, 20, 11, 2, -7, -16]$ and so on. Similarly for the last but three point we use the column headed 4 reading the values *up* the tables, so obtaining the values $\frac{1}{180}[8, 11, 14, 17, 20, 23, 26, 29, 32]$, and so on.

The columns headed 0 give the weights required to extrapolate the fitting one unit beyond the end of the observed series.

The sums in the last row but one are the sums of the integral weights given in the table.

The final row in the table is the square root of the error-reducing factor, i.e. $\sqrt{\sum x_i^2 / (\sum x_i)^2}$ where the values in that column are denoted x_i .

LINEAR

$N = 3$

0	1	2
4	5	1
1	2	1
-2	-1	1
3	6	3
1.528	0.913	0.577

$N = 5$

0	1	2	3
8	3	4	1
5	2	3	1
2	1	2	1
-1	0	1	1
-4	-1	0	1
10	5	10	5
1.049	0.775	0.548	0.447

$N = 7$

0	1	2	3	4
4	13	5	7	1
3	10	4	6	1
2	7	3	5	1
1	4	2	4	1
0	1	1	3	1
-1	-2	0	2	1
-2	-5	-1	1	1
7	28	14	28	7
0.845	0.681	0.535	0.423	0.378

LINEAR

$N = 9$

0	1	2	3	4	5
16	17	56	22	32	1
13	14	47	19	29	1
10	11	38	16	26	1
7	8	29	13	23	1
4	5	20	10	20	1
1	2	11	7	17	1
-2	-1	2	4	14	1
-5	-4	-7	1	11	1
-8	-7	-16	-2	8	1

36	45	180	90	180	9
0.726	0.615	0.511	0.422	0.357	0.333

$N = 11$

0	1	2	3	4	5	6
20	7	15	25	10	15	1
17	6	13	22	9	14	1
14	5	11	19	8	13	1
11	4	9	16	7	12	1
8	3	7	13	6	11	1
5	2	5	10	5	10	1
2	1	3	7	4	9	1
-1	0	1	4	3	8	1
-4	-1	-1	1	2	7	1
-7	-2	-3	-2	1	6	1
-10	-3	-5	-5	0	5	1

55	22	55	110	55	110	11
0.647	0.564	0.486	0.416	0.357	0.316	0.302

LINEAR
 $N = 13$

0	1	2	3	4	5	6	7
8	25	44	19	32	13	20	1
7	22	39	17	29	12	19	1
6	19	34	15	26	11	18	1
5	16	29	13	23	10	17	1
4	13	24	11	20	9	16	1
3	10	19	9	17	8	15	1
2	7	14	7	14	7	14	1
1	4	9	5	11	6	13	1
0	1	4	3	8	5	12	1
-1	-2	-1	1	5	4	11	1
-2	-5	-6	-1	2	3	10	1
-3	-8	-11	-3	-1	2	9	1
-4	-11	-16	-5	-4	1	8	1
26	91	182	91	182	91	182	13
0.588	0.524	0.463	0.406	0.355	0.314	0.287	0.277

$N = 15$

0	1	2	3	4	5	6	7	8
28	29	91	161	35	119	49	77	1
25	26	82	146	32	110	46	74	1
22	23	73	131	29	101	43	71	1
19	20	64	116	26	92	40	68	1
16	17	55	101	23	83	37	65	1
13	14	46	86	20	74	34	62	1
10	11	37	71	17	65	31	59	1
7	8	28	56	14	56	28	56	1
4	5	19	41	11	47	25	53	1
1	2	10	26	a	38	22	50	1
-2	-1	1	11	5	29	19	47	1
-5	-4	-8	-4	2	20	16	44	1
-8	-7	-17	-19	-1	11	13	41	1
-11	-10	-26	-34	-4	2	10	38	1
-14	-13	-35	-49	-7	-7	7	35	1
105	120	420	840	210	840	420	840	15
0.543	0.492	0.442	0.395	0.352	0.314	0.285	0.265	0.258

LINEAR
 $N = 17$

0	1	2	3	4	5	6	7	8	9
32	11	80	12	64	14	16	20	32	1
29	10	73	11	59	13	15	19	31	1
26	9	66	10	54	12	14	18	30	1
23	8	59	9	49	11	13	17	29	1
20	7	52	8	44	10	12	16	28	1
17	6	45	7	39	9	11	15	27	1
14	5	38	6	34	8	10	14	26	1
11	4	31	5	29	7	9	13	25	1
8	3	24	4	24	6	8	12	24	1
5	2	17	3	19	5	7	11	23	1
2	1	10	2	14	4	6	10	22	1
-1	0	3	1	9	3	5	9	21	1
-4	-1	-4	0	4	2	4	8	20	1
-7	-2	-11	-1	-1	1	3	7	19	1
-10	-3	-18	-2	-6	0	2	6	18	1
-13	-4	-25	-3	-11	-1	1	5	17	1
-16	-5	-32	-4	-16	-2	0	4	16	1
136	51	408	68	408	102	136	204	408	17
0.507	0.464	0.423	0.383	0.347	0.313	0.284	0.262	0.248	0.243

LINEAR
 $N = 19$

0	1	2	3	4	5	6	7	8	9	10
12	37	51	93	14	15	33	19	24	39	1
11	34	47	86	13	14	31	18	23	38	1
10	31	43	79	12	13	29	17	22	37	1
9	28	39	72	11	12	27	16	21	36	1
8	25	35	65	10	11	25	15	20	35	1
7	22	31	58	9	10	23	14	19	34	1
6	19	27	51	8	9	21	13	18	33	1
5	16	23	44	7	8	19	12	17	32	1
4	13	19	37	6	7	17	11	16	31	1
3	10	15	30	5	6	15	10	15	30	1
2	7	11	23	4	5	13	9	14	29	1
1	4	7	16	3	4	11	8	13	28	1
0	1	3	9	2	3	9	7	12	27	1
-1	-2	-1	2	1	2	7	6	11	26	1
-2	-5	-5	-5	0	1	5	5	10	25	1
-3	-8	-9	-12	-1	0	3	4	9	24	1
-4	-11	-13	-19	-2	-1	1	3	8	23	1
-5	-14	-17	-26	-3	-2	-1	2	7	22	1
-6	-17	-21	-33	-4	-3	-3	1	6	21	
57	190	285	570	95	114	285	190	285	570	19
0.478	0.441	0.406	0.372	0.340	0.311	0.284	0.262	0.244	0.233	0.229

QUADRATIC

$N = 5$

0	1	2	3
9	31	9	-3
0	9	13	12
-4	-3	12	17
-3	-5	6	12
3	3	-5	-3
5	35	35	35
2.145	0.941	0.609	0.697

$N = 7$

0	1	2	3	4
9	32	5	1	-2
3	15	4	3	3
-1	3	3	4	6
-3	-4	2	4	7
-3	-6	1	3	6
-1	-3	0	1	3
3	5	-1	-2	-2
7	42	14	14	21
1.558	0.873	0.535	0.535	0.577

$N = 9$

0	1	2	3	4	5
42	109	126	378	14	-21
21	63	92	441	273	14
5	27	63	464	447	39
-6	1	39	447	536	54
-12	-15	20	390	540	59
-13	-21	6	293	459	54
-9	-17	-3	156	293	39
0	-3	-7	-21	42	14
21	-6	-238	-294	-21	14
42	165	330	2310	2310	231
1.272	0.813	0.528	0.448	0.482	0.505

QUADRATIC
 $N = 11$

0	1	2	3	4	5	6
135	83	270	450	55	-15	-36
81	54	199	414	87	46	9
37	30	138	373	109	92	44
3	11	87	327	121	123	69
-21	-3	46	276	123	139	84
-35	-12	15	220	115	140	89
-39	-16	-6	159	97	126	84
-33	-15	-17	93	69	97	69
-17	-9	-18	22	31	53	44
9	2	-9	-54	-17	-6	9
45	18	10	-135	-75	-80	-36
165	143	715	2145	715	715	429
1.098	0.762	0.528	0.417	0.411	0.441	0.455

$N = 13$

01	1	2	3	4	5	6	7
99	47	33	231	121	33	-33	-11
66	33	25	198	132	77	33	0
38	21	18	167	138	<i>ill</i>	86	9
15	11	12	138	139	135	126	16
-3	3	7	<i>ill</i>	135	149	153	21
-16	-3	3	86	126	153	167	24
-24	-7	0	63	112	147	168	25
-27	-9	-2	42	93	131	156	24
-25	-9	-3	23	69	105	131	21
-18	-7	-3	6	40	69	93	16
-6	-3	-2	-9	6	23	42	9
11	3	0	-22	-33	-33	-22	0
33	11	3	-33	-77	-99	-99	-11
143	91	91	1001	1001	1001	1001	143
0.979	0.719	0.524	0.408	0.373	0.386	0.408	0.418

QUADRATIC

$N = 15$

0	1	2	3	4	5	6	7	8
273	158	819	7371	2275	2184	273	-1183	-78
195	117	638	6201	2184	2795	1482	429	-13
127	81	477	5126	2073	3261	2471	1776	42
69	50	336	4146	1942	3582	3240	2858	87
21	24	215	3261	1791	3758	3789	3675	122
-17	3	114	2471	1620	3789	4118	4227	147
-45	-13	33	1776	1429	3675	4227	4514	162
-63	-24	-28	1176	1218	3416	4116	4536	167
-71	-30	-69	671	987	3012	3785	4293	162
-69	-31	-90	261	736	2463	3234	3785	147
-57	-27	-91	-54	465	1769	2463	3012	122
-35	-18	-72	-274	174	930	1472	1974	87
-3	-4	-33	-399	-137	-54	261	671	42
39	15	26	-429	-468	-1183	-1170	-897	-13
91	39	105	-364	-819	-2457	-2821	-2730	-78
455	340	2380	30940	15470	30940	30940	30940	1105
0.891	0.682	0.518	0.407	0.354	0.349	0.3P5	0.382	0.389

$N = 17$

0	1	2	3	4	5	6	7	8	9
36	409	1260	308	628	186	52	-20	-156	-21
27	315	1006	259	573	197	80	<i>ill</i>	7	-6
19	231	777	214	519	204	103	222	147	7
12	157	573	173	466	207	121	313	264	18
6	93	394	136	414	206	134	384	358	27
1	39	240	103	363	201	142	435	429	34
-3	-5	<i>ill</i>	74	313	192	145	466	477	39
-6	-39	7	49	264	179	143	477	502	42
-8	-63	-72	28	216	162	136	468	504	43
-9	-77	-126	11	169	141	124	439	483	42
-9	-81	-155	-2	123	116	107	390	439	39
-8	-75	-159	-11	78	87	85	321	372	34
-6	-59	-138	-16	34	54	58	232	282	27
-3	-33	-92	-17	-9	17	26	123	169	18
1	3	-21	-14	-51	-24	-11	-6	33	7
6	49	75	-7	-92	-69	-53	-155	-126	-6
12	105	196	4	-132	-118	-100	-324	-308	-21
68	969	3876	1292	3876	1938	1292	3876	3876	323
0.822	0.650	0.509	0.407	0.347	0.326	0.332	0.347	0.360	0.365

QUADRATIC

$N = 19$

0	1	2	3	4	5	6	7	8	9	10
459	257	612	7956	1921	765	306	34	-459	-1377	-136
357	204	499	6732	1717	748	357	68	527	-204	-51
265	156	396	5603	1523	726	398	97	1383	824	24
183	113	303	4569	1339	699	429	121	2109	1707	89
111	75	220	3630	1165	667	450	140	2705	2445	144
49	42	147	2786	1001	630	461	154	3171	3038	189
-3	14	84	2037	847	588	462	163	3507	3486	224
-45	-9	31	1383	703	541	453	167	3713	3789	249
-77	-27	-12	824	569	489	434	166	3789	3947	264
-99	-40	-45	360	445	432	405	160	3735	3960	269
-111	-48	-68	-9	331	370	366	149	3551	3828	264
-113	-51	-81	-283	227	303	317	133	3237	3551	249
-105	-49	-84	-462	133	231	258	112	2793	3129	224
-87	-42	-77	-546	49	154	189	86	2219	2562	189
-59	-30	-60	-535	-25	72	110	55	1515	1850	144
-21	-13	-33	-429	-89	-15	21	19	681	993	89
27	9	4	-228	-143	-107	-78	-22	-283	-9	24
85	36	51	68	-187	-204	-17	-68	-1377	-1156	-51
153	68	108	459	-221	-306	-306	-119	-2601	-2448	-136
969	665	1995	33915	11305	6783	4845	1615	33915	33915	2261
0.768	0.622	0.500	0.406	0.344	0.314	0.308	0.318	0.331	0.341	0.345

CUBIC

$N = 5$

0	1	2	3
16	69	2	-3
-14	4	27	12
-4	-6	12	17
11	4	-8	2
-4	-1	2	-3
5	70	35	35
4.919	0.993	0.878	0.697

$N = 7$

0	1	2	3	4
16	39	8	-4	-2
-4	8	19	16	3
-8	-4	16	19	6
-3	-4	6	12	7
4	1	-4	2	6
6	4	-7	-4	3
-4	-2	4	1	-2
7	42	42	42	21
2.903	0.964	0.673	0.673	0.577

$N = 9$

0	1	2	3	4	5
224	85	56	-28	-56	-21
14	28	65	392	84	14
-76	-2	56	515	144	39
-81	-12	36	432	145	54
-36	-9	12	234	108	59
24	0	-9	12	54	54
64	8	-20	-143	4	39
49	8	-14	-140	-21	14
-56	-7	16	112	0	-21
126	99	198	1386	462	231
2.162	0.927	0.573	0.610	0.560	0.505

CUBIC
 $N = 11$

0	1	2	3	4	5	6
96	113	48	24	-72	-51	-36
24	48	41	96	132	36	9
-16	8	32	123	232	86	44
-31	-12	22	116	251	106	69
-28	-17	12	86	212	103	84
-14	-12	3	44	138	84	89
4	-2	-4	1	52	56	84
19	8	-8	-32	-23	26	69
24	13	-8	-44	-64	1	44
12	8	-3	-24	-48	-12	9
-24	-12	8	39	48	-6	-36
66	143	143	429	858	429	429
1.771	0.889	0.535	0.535	0.541	0.490	0.455

$N = 13$

0	1	2	3	4	5	6	7
176	265	33	231	-33	-407	-110	-11
66	132	25	396	132	308	33	0
-4	42	18	460	222	738	128	9
-41	-12	12	444	251	932	182	16
-52	-37	7	369	233	939	202	21
-44	-40	3	256	182	808	195	24
-24	-28	0	126	112	588	168	25
1	-8	-2	0	37	328	128	24
24	13	-3	-101	-29	77	82	21
38	28	-3	-156	-72	-116	37	16
36	30	-2	-144	-78	-202	0	9
11	12	0	-44	-33	-132	-22	0
-44	-33	3	165	77	143	-22	-11
143	364	91	2002	1001	4004	1001	143
1.526	0.853	0.524	0.479	0.501	0.484	0.441	0.418

CUBIC

$N = 15$

0	1	2	3	4	5	6	7	8
1456	2059	8008	44044	2002	-19201	-28756	-3094	-78
676	1144	5833	52624	17017	19604	8879	156	-13
136	484	4048	54709	25762	44294	34244	2511	42
-199	44	2618	51524	29252	57004	49054	4076	87
-364	-211	1508	44294	28502	59869	55024	4956	122
-394	-316	683	34244	24527	55024	53869	5256	147
-324	-306	108	22599	18342	44604	47304	5081	162
-189	-216	-252	10584	10962	30744	37044	4536	167
-24	-81	-432	-576	3402	15579	24804	3726	162
136	64	-467	-9656	-3323	1244	12299	2756	147
256	184	-392	-15431	-8198	-10126	1244	1731	122
301	244	-242	-16676	-10208	-16396	-6646	756	87
236	209	-52	-12166	-8338	-15431	-9656	-64	42
26	44	143	-676	-1573	-5096	-6071	-624	-13
-364	-286	308	19019	11102	16744	5824	-819	-78
1365	3060	21420	278460	139230	278460	278460	30940	1105
1.356	0.820	0.522	0.443	0.458	0.464	0.410	0.405	0.389

$N = 17$

0	1	2	3	4	5	6	7	8	9
64	605	1456	723	208	-66	-320	-384	-352	-21
34	364	1055	728	468	134	121	20	-42	-6
12	182	728	691	624	267	428	313	196	7
-3	52	468	624	691	342	618	508	369	18
-12	-33	268	534	684	368	708	618	484	27
-16	-80	121	428	618	354	715	656	548	34
-16	-96	20	313	508	309	656	635	568	39
-13	-88	-42	196	369	242	548	568	551	42
-8	-63	-72	84	216	162	408	468	504	43
-2	-28	-77	-16	64	78	253	348	434	42
4	10	-64	-97	-72	-1	100	221	348	39
9	44	-40	-152	-177	-66	-34	100	253	34
12	67	-12	-174	-236	-108	-132	-2	156	27
12	72	13	-156	-234	-118	-177	-72	64	18
8	52	28	-91	-156	-87	-152	-97	-16	7
-1	0	26	28	13	-6	-40	-64	-77	-6
-16	-91	0	208	288	134	176	40	-112	-21
68	969	3876	3876	3876	1938	3876	3876	3876	323
1.231	0.790	0.522	0.422	0.422	0.436	0.429	0.405	0.377	0.365

CUBIC
 $N = 19$

0	1	2	3	4	5	6	7	8	9	10
3264	851	1632	15504	25296	-153	-1224	-918	-27744	-561	-136
1904	544	1193	14144	36856,	5372	714	68	-3264	-136	-51
864	304	832	12601	43696	9162	2104	797	15424	204	24
109	124	542	10924	46439	11427	3009	1297	28901	466	89
-396	-3	316	9162	45708	12377	3492	1596	37748	657	144
-686	-84	147	7364	42126	12222	3616	1722	42546	784	189
-796	-126	28	5579	36316	11172	3444	1703	43876	854	224
-761	-136	-48	3856	28901	9437	3039	1567	42319	874	249
-616	-121	-88	2244	20504	7227	2464	1342	38456	851	264
-396	-88	-99	792	11748	4752	1782	1056	32868	792	269
-136	-44	-88	-451	3256	2222	1056	737	26136	704	264
129	4	-62	-1436	-4349	-153	349	413	18841	594	249
364	49	-28	-2114	-10444	-2163	-276	112	11564	469	224
534	84	7	-2436	-14406	-3598	-756	-138	4886	336	189
604	102	36	-2353	-15612	-4248	-1028	-309	-612	202	144
539	96	52	-1816	-13439	-3903	-1029	-373	-4349	74	89
304	59	48	-776	-7264	-2353	-696	-302	-5744	-41	24
-136	-16	17	816	3536	612	4	-68	-4216	-136	-51
-816	-136	-48	3009	19584	5202	1224	357	816	-204	-136
3876	1463	4389	74613	298452	74613	21318	10659	298452	6783	2261
1.133	0.763	0.521	0.411	0.394	0.407	0.412	0.400	0.377	0.354	0.345

QUARTIC
 $N = 7$

0	1	2	3	4
25	456	25	-35	5
-25	25	356	155	-30
-5	-35	155	212	75
15	10	-60	150	131
7	20	-65	25	75
-15	-19	70	-65	-30
5	5	-19	20	5
7	462	462	462	231
6.059	0.993	0.878	0.677	0.753

$N = 9$

0	1	2	3	4	5
50	1231	350	-250	-50	15
-25	175	1412	1025	75	-55
-25	-125	1025	1112	225	30
0	-75	225	675	304	135
18	45	-330	180	270	179
15	81	-360	-105	135	135
-5	5	37	-110	-35	30
-20	-85	385	37	-120	-55
10	35	-170	10	54	15
18	1287	2574	2574	858	429
3.859	0.978	0.741	0.657	0.595	0.646

QUARTIC

$N = 11$

0	1	2	3	4	5	6
75	131	30	-30	-45	-15	18
-15	30	59	150	75	0	-45
-35	-10	50	177	125	50	-10
-20	-15	25	125	127	100	60
4	-5	0	50	100	127	120
20	6	-15	-10	60	120	143
20	10	-16	-35	20	80	120
5	5	-5	-23	-10	20	60
-15	-5	10	10	-23	-35	-10
-21	-10	15	30	-15	-48	-45
15	6	-10	-15	15	30	18
33	143	143	429	429	429	429
2.908	0.957	0.642	0.642	0.544	0.544	0.577

$N = 13$

0	1	2	3	4	5	6	7
275	2698	825	-825	-3795	-2915	-286	110
0	825	1048	9900	6270	2255	-495	-198
-100	-75	900	12428	10140	5745	640	-135
-95	-345	570	10140	9992	7625	2230	110
-41	-265	205	5745	7625	8042	3610	390
20	-52	-90	1280	4460	7220	4339	600
60	140	-252	-1890	1540	5460	4200	677
65	220	-260	-3072	-470	3140	3200	600
35	160	-135	-2245	-1283	715	1570	390
-16	-5	60	-60	-990	-1283	-235	110
-60	-177	220	2160	-60	-2245	-1536	-135
-55	-195	198	2420	660	-1485	-1430	-198
55	165	-195	-1947	-55	1760	1210	115
143	3094	3094	34034	34034	34034	17017	2436
2.379	0.934	0.582	0.604	0.542	0.486	0.505	0.527

QUARTIC

$N = 15$

0	1	2	3	4	5	6	7	8
5005	9626	25025	25025	-50050	-1251250	-749749	-5005	2145
715	3575	24482	260975	89375	1011725	177320	-46761	-2860
-1265	275	20075	331466	147950	2240975	1038785	-2970	-2937
-1705	-1100	13750	295900	151708	2698300	1732390	82940	-165
-1249	-1250	7075	203725	122650	2614126	2187505	176235	3755
-415	-749	1240	94435	78745	2187505	2365126	250875	7500
405	-45	-2943	-2430	33930	1586115	2257875	289514	10125
945	540	-5040	-67284	-1890	946260	1890000	283500	11063
1065	810	-4995	-90495	-22842	372870	1317375	232875	10125
751	695	-3130	-72385	-27085	-60499	627500	146375	7500
115	251	-145	-23230	-16810	-311665	-60499	41430	3755
-605	-340	2882	36740	1760	-369820	-595870	-55836	-165
-1045	-770	4495	77341	18370	-255530	-796235	-110605	-2937
-715	-605	2860	58435	18733	-20735	-447590	-79365	-2858
1001	715	-4235	-70070	-15470	251251	695695	90090	2145
3003	11628	81396	1058148	529074	11639628	11639628	1293292	46191
2.040	0.910	0.548	0.560	0.535	0.474	0.451	0.473	0.489

$N = 17$

0	1	2	3	4	5	6	7	8	9
1300	761	1300	260	-260	-2730	-4628	-2340	260	195
325	325	1094	845	585	2210	1690	-403	-1755	-195
-195	65	845	1042	975	4875	5915	2080	-1079	-260
390	-65	585	975	1042	5850	8385	4615	1170	-117
-372	-105	340	750	900	5648	9420	6810	4060	135
-235	-89	130	455	645	4710	9322	8375	6845	415
-55	-45	-31	160	355	3405	8375	9122	8965	660
110	5	-135	-83	90	2030	6845	8965	10046	825
220	45	-180	-240	-108	810	4980	7920	9900	883
253	65	-170	-295	-215	-102	3010	6105	8525	825
205	61	-115	-250	-225	-625	1147	3740	6105	660
90	35	-31	-125	-150	-750	-415	1147	3010	415
-60	-5	60	42	-20	-540	-1500	-1250	-204	135
-195	-45	130	195	117	-130	-1950	-2925	-2795	-117
-247	-65	145	260	195	273	-1625	-3250	-385	-195
-130	-39	65	145	130	390	-403	-1495	-2210	
-195	260	65	-156	-260	-180	-130	1820	3172	3380
884	969	3876	3876	3876	25194	50388	50388	50388	4264
1.804	0.886	0.531	0.518	0.518	0.473	0.430	0.425	0.447	0.450

QUARTIC
 $N = 19$

0	1	2	3	4	5	6	7	8	9	10
2550	3583	5100	25500	-17850	-47430	-50184	-36720	-15810	255	340
850	1700	3949	49300	67150	40460	18870	2516	-8670	-680	-255
-150	500	2900	57533	109450	89640	62360	33170	6466	-660	-420
-625	-175	1975	54725	120266	109455	85515	55585	25445	-22	-290
-729	-465	1190	44820	109455	108188	93060	70230	44795	945	18
-595	-492	555	31180	85515	93060	89216	77700	61725	2000	405
-335	-360	74	16585	55585	70230	77700	78716	74125	2950	790
-40	-155	-255	3233	25445	44795	61725	74125	80566	3650	1110
220	55	-440	-7260	-484	20790	44000	64900	80300	4003	1320
396	220	-495	-13860	-19140	1188	26730	52140	73260	3960	1393
460	308	-440	-16115	-28820	-12100	11616	37070	60060	3520	1320
405	305	-301	-14155	-29180	-18225	-145	21041	41995	2730	1110
245	215	-110	-8692	-21235	-17400	-7860	5530	21041	1685	790
15	60	95	-1020	-7359	-10900	-11340	-7860	-145	528	405
-229	-120	270	6985	8715	-1062	-10900	-17400	-18225	-550	18
-410	-267	365	12865	21895	8715	-7359	-21235	-29180	-1310	-278
-430	-305	324	13580	25730	13970	-2040	-17384	-28310	-1465	-420
-170	-140	85	5508	12410	9180	3230	-3740	-10234	-680	-255
510	340	-420	-15555	-27234	-12240	6120	21930	31110	1428	340
1938	4807	14421	245157	490314	490314	490314	490314	490314	22287	7441
1.630	0.863	0.523	0.484	0.495	0.470	0.427	0.401	0.405	0.424	0.432

QUINTIC

$$N = 7$$

0	1	2	3	4
36	923	1	-5	5
-69	6	148	30	-30
50	-15	15	233	75
15	20	-20	100	131
-48	-15	15	-75	75
29	6	-6	30	-30
-6	-1	1	-5	5
7	924	154	308	231
15.625	0.999	0.980	0.870	0.753

$$N = 9$$

0	1	2	3	4	5
48	425	72	-54	32	15
-57	18	1385	261	-213	-55
-2	-27	522	400	582	30
33	8	-213	291	905	135
12	15	-220	60	540	179
-23	-6	123	-101	-27	135
-18	-13	-66	-202	30	
27	12	-187	93	123	-55
-8	-3	48	-26	-24	15
12	429	1716	858	1716	429
7.654	0.995	0.898	0.683	0.726	0.646

QUINTIC

$N = 11$

0	1	2	3	4	5	6
108	557	27	-153	-4	6	18
-81	54	184	666	3	-22	-45
-46	-51	<i>ill</i>	719	38	13	-10
24	-16	6	456	57	48	60
48	24	-44	156	48	57	120
20	24	-30	-40	20	40	143
-24	-4	12	-96	-8	12	120
-39	-24	34	-48	-18	-8	60
-4	-9	9	29	-4	-8	-10
45	26	-36	54	17	6	-45
-18	-9	13	-27	-6	-1	18
33	572	286	1716	143	143	429
5.078	0.987	0.802	0.647	0.631	0.631	0.577

$N = 13$

0	1	2	3	4	5	6	7
792	420	132	-429	-704	33	132	110
-363	66	455	1881	1221	-352	-330	-198
-398	-39	342	2030	2586	453	-50	-135
-69	-32	<i>ill</i>	1293	3045	1314	405	110
204	3	-64	453	2628	1680	720	390
260	24	-120	-100	1620	1440	777	600
120	20	-72	-270	440	780	600	677
-90	0	20	-156	-480	40	300	600
-216	-18	84	47	-816	-429	20	390
-153	-18	69	147	-473	-408	-120	110
78	3	-22	54	294	47	-78	-135
253	24	-99	-121	759	462	55	-198
-132	-11	48	33	-396	-198	0	195
286	442	884	4862	9724	4862	2431	2516
3.849	0.975	0.717	0.646	0.560	0.588	0.565	0.514

QUINTIC

$N = 15$

0	1	2	3	4	5	6	7	8
1716	11919	1287	-11583	-4147	-67353	5577	22165	2145
-429	2574	2742	59202	7293	10582	-17160	-40326	-2860
-814	-891	2277	67827	11913	227337	-605	-23925	-2937
-429	-1276	1122	47652	12048	422532	26730	22660	-165
96	-471	37	20667	9603	513417	47835	68055	3755
425	390	-600	-550	6075	478350	55002	95250	7500
450	775	-705	-10875	2575	340275	47625	98629	10125
225	600	-400	-10680	-150	150200	30000	81000	11063
-100	75	75	-3875	-1695	-29325	9125	50625	10125
-345	-450	450	4050	-1975	-140730	-7500	18250	7500
-366	-639	513	7983	-1203	-147947	-14073	-5865	3755
-121	-324	198	5148	132	-52932	-8690	-14916	-165
264	341	-327	-2937	1287	87813	4455	-8525	-2937
429	726	-572	-8502	1287	146718	12870	4290	-2804
-286	-429	363	4433	-1053	-91377	-6435	2145	2145
715	12920	6460	167960	41990	1847560	184756	369512	46245
3.137	0.960	0.652	0.635	0.536	0.527	0.546	0.517	0.489

$N = 17$

0	1	2	3	4	5	6	7	8	9
3744	865	1872	-52	-832	-1794	-208	2236	6240	195
-351	234	2825	403	1443	1391	-1391	-4407	-8515	-195
-1534	-39	2418	486	2262	3939	1066	-2496	-7878	-260
-1209	-104	1443	377	2201	5499	4511	2899	195	-117
-348	-69	428	202	1692	5972	7276	8394	10100	135
443	-6	-321	41	1041	5457	8511	12027	18255	415
858	43	-678	-64	446	4197	8018	12994	22770	660
825	60	-655	-101	15	2525	6085	11385	23117	825
440	45	-360	-80	-216	810	3320	7920	19800	883
-99	10	45	-25	-265	-597	485	3685	14025	825
-558	-27	386	34	-186	-1417	-1670	-132	7370	660
-733	-48	519	69	-51	-1497	-2573	-2505	1455	415
-516	-41	372	62	68	-864	-1996	-2834	-2388	135
39	-6	-13	13	117	221	-221	-1209	-3445	-117
650	39	-438	-52	78	1209	1794	1326	-1950	510
741	52	-507	-73	-13	1209	2249	2509	585	-195
-624	-39	416	52	-48	-1066	-1664	-1404	1040	195
1768	969	7752	1292	7752	25194	33592	50388	100776	4969
2.675	0.945	0.604	0.613	0.533	0.487	0.503	0.508	0.479	0.397

QUINTIC
 $N = 19$

0	1	2	3	4	5	6	7	8	9	10
3672	8288	3978	-3978	-16796	-91494	-19890	5066	25704	1377	340
102	2652	4697	135252	29614	78676	-1326	-18020	-36346	-1428	-255
-1228	-78	3978	167888	46904	176046	33254	-6274	-33420	-1738	-420
-1263	-988	2613	140712	46256	216996	68289	20256	1839	-660	-290
-696	-897	1157	88023	36166	216475	93951	47689	46016	978	18
-1	-390	-39	33254	22763	187902	105254	67442	83703	2594	405
534	149	-795	-9411	10128	143067	101163	75361	106278	3819	790
774	504	-1069	-33420	613	92032	83703	70852	110684	4464	1110
704	594	-924	-38236	-4840	43032	57068	56012	98208	4487	1320
396	440	-495	-27720	-6380	2376	26730	34760	73260	3960	1393
-24	132	44	-8514	-4928	-25652	-1452	11968	42152	3036	1320
-409	-204	513	11576	-1858	-38892	-22123	-7408	11877	1916	1110
-624	-439	759	25197	1322	-37407	-31323	-19197	-11112	816	790
-579	-474	689	27066	3289	-23582	-27378	-20882	-22123	-66	405
-262	-273	303	15587	3224	-2223	-11791	-12469	-19446	-583	18
228	104	-273	-5532	1131	19344	9867	2644	-5574	-672	-120
648	468	-754	-25662	-1844	31174	27066	16798	11576	-387	-420
578	468	-663	-25636	-3094	20604	23426	17204	17442	68	-255
-612	-442	702	23868	1768	-27846	-24174	-14926	-10404	306	340
1938	9614	14421	490314	163438	980628	490314	326876	490314	22287	7599
2.351	0.928	0.571	0.585	0.532	0.470	0.463	0.480	0.475	0.449	0.422