

Table 1: Reported results for problems 5.1-5.2

PN	VAR	SP	NHZ1			NHZ2			Algorithm 3			Algorithm 4			Algorithm 5							
			NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT					
5.1	1000	x_0^1	12	21	0.0463	2.908E-09	11	19	0.0465	7.124E-09	364	366	0.3224	9.963E-09	22	35	0.0354	6.668E-09	**	**	**	
	1000	x_0^2	12	21	0.0360	2.908E-09	11	19	0.0221	7.124E-09	54	56	0.0992	9.268E-09	21	34	0.0174	9.886E-09	51	106	0.0364	7.707E-09
	1000	x_3^3	724	764	0.3470	9.519E-09	765	807	0.3699	9.950E-09	**	**	**	**	**	**	**	**	**	**	**	
	1000	x_0^4	12	21	0.0108	2.908E-09	11	19	0.0127	7.124E-09	54	56	0.0637	9.268E-09	22	35	0.0158	6.668E-09	51	106	0.0310	7.717E-09
	1000	x_0^5	12	21	0.0179	2.908E-09	11	19	0.0106	7.124E-09	54	56	0.0694	9.268E-09	22	35	0.0190	6.668E-09	51	106	0.0387	7.717E-09
	1000	x_6^6	12	21	0.0114	2.908E-09	11	19	0.0181	7.124E-09	54	56	0.0624	9.268E-09	22	35	0.0187	6.668E-09	51	106	0.0518	7.716E-09
	1000	x_0^7	12	21	0.0121	2.908E-09	11	19	0.0172	7.124E-09	**	**	**	**	**	**	**	**	**	**	**	
	1000	x_8^8	724	764	0.3610	9.519E-09	765	807	0.3931	9.950E-09	**	**	**	**	**	**	**	**	**	**	**	
	10000	x_0^9	9	32	0.0740	4.019E-09	9	33	0.0748	7.293E-09	50	52	0.3309	9.788E-09	13	28	0.0870	6.593E-09	57	119	0.2561	9.853E-09
	10000	x_0^{10}	9	32	0.0802	4.019E-09	9	33	0.0775	7.293E-09	54	56	0.2104	7.032E-09	13	28	0.0762	6.593E-09	26	57	0.1473	9.468E-09
	10000	x_3^{11}	36	107	0.2037	7.917E-09	64	202	0.3530	6.860E-09	54	56	0.3344	9.767E-09	**	**	**	**	76	161	0.3478	9.225E-09
	10000	x_0^{12}	9	32	0.0852	4.019E-09	9	33	0.0813	7.293E-09	24	26	0.2336	7.032E-09	13	28	0.0894	6.593E-09	26	57	0.1559	9.468E-09
	10000	x_6^{13}	9	32	0.0684	4.019E-09	9	33	0.0780	7.293E-09	24	26	0.2015	7.032E-09	13	28	0.0819	6.593E-09	26	57	0.1214	9.468E-09
	10000	x_0^{14}	9	32	0.0781	4.019E-09	9	33	0.0903	7.293E-09	24	26	0.1814	7.032E-09	13	28	0.1625	6.593E-09	26	57	0.1450	9.468E-09
	10000	x_0^{15}	9	32	0.0801	4.019E-09	9	33	0.0869	7.293E-09	54	56	0.3685	9.751E-09	13	28	0.1190	6.593E-09	75	159	0.3379	9.675E-09
	10000	x_8^{16}	36	107	0.2178	7.917E-09	64	202	0.3618	6.860E-09	54	56	0.3466	9.767E-09	**	**	**	**	76	161	0.3416	9.225E-09
	100000	x_0^{17}	6	36	0.4757	8.280E-10	9	62	0.6546	6.129E-09	**	**	**	**	**	**	**	**	**	**	**	
	100000	x_0^{18}	6	36	0.4563	8.280E-10	9	62	0.6491	6.129E-09	6	24	0.4283	1.690E-09	12	45	0.6277	8.886E-09	83	249	3.3917	9.834E-09
	100000	x_3^{19}	22	132	1.4614	8.523E-09	9	62	0.7119	6.213E-09	**	**	**	**	**	**	**	**	**	**	**	
	100000	x_0^{20}	6	36	0.5062	8.280E-10	9	62	0.6901	6.129E-09	6	24	0.4292	1.690E-09	12	45	0.6750	8.886E-09	83	249	3.4482	9.834E-09
	100000	x_6^{21}	6	36	0.4539	8.280E-10	9	62	0.6833	6.129E-09	6	24	0.5091	1.690E-09	12	45	0.6365	8.886E-09	83	249	3.4414	9.834E-09
	100000	x_0^{22}	6	36	0.4296	8.280E-10	9	62	0.6345	6.129E-09	6	24	0.4629	1.690E-09	12	45	0.6719	8.886E-09	83	249	3.7076	9.834E-09
	100000	x_8^{23}	6	36	0.4845	8.280E-10	9	62	0.6259	6.129E-09	**	**	**	**	**	**	**	**	**	**	**	
	100000	x_3^{24}	22	132	1.5030	8.523E-09	9	62	0.6996	6.213E-09	**	**	**	**	**	**	**	**	**	**	**	
5.2	1000	x_0^1	2	14	0.0108	0.000E+00	2	14	0.0115	0.000E+00	2	14	0.0096	0.000E+00	2	25	0.0084	0.000E+00	**	**	**	
	1000	x_0^2	3	26	0.0136	0.000E+00	2	25	0.0089	0.000E+00	2	14	0.0137	0.000E+00	3	26	0.0093	0.000E+00	**	**	**	
	1000	x_3^3	2	14	0.0062	0.000E+00	2	14	0.0060	0.000E+00	2	14	0.0068	0.000E+00	3	26	0.0067	0.000E+00	**	**	**	
	1000	x_0^4	2	14	0.0045	0.000E+00	2	14	0.0071	0.000E+00	2	14	0.0165	0.000E+00	3	26	0.0058	0.000E+00	**	**	**	
	1000	x_6^5	2	14	0.0125	0.000E+00	2	14	0.0057	0.000E+00	2	14	0.0121	0.000E+00	2	25	0.0052	0.000E+00	**	**	**	
	1000	x_0^6	2	14	0.0059	0.000E+00	2	14	0.0063	0.000E+00	2	14	0.0125	0.000E+00	3	26	0.0083	0.000E+00	**	**	**	
	1000	x_0^7	2	14	0.0062	0.000E+00	2	14	0.0110	0.000E+00	2	14	0.0180	0.000E+00	2	25	0.0051	0.000E+00	**	**	**	
	1000	x_8^8	2	14	0.0046	0.000E+00	2	14	0.0062	0.000E+00	2	14	0.0180	0.000E+00	3	26	0.0055	0.000E+00	**	**	**	
	10000	x_0^9	2	14	0.0485	0.000E+00	2	14	0.0251	0.000E+00	2	14	0.0420	0.000E+00	2	14	0.0200	0.000E+00	**	**	**	
	10000	x_0^{10}	2	14	0.0406	0.000E+00	2	14	0.0233	0.000E+00	2	14	0.0513	0.000E+00	2	14	0.0191	0.000E+00	**	**	**	
	10000	x_3^{11}	2	14	0.0244	0.000E+00	2	14	0.0245	0.000E+00	2	14	0.0406	0.000E+00	2	14	0.0238	0.000E+00	**	**	**	
	10000	x_0^{12}	2	14	0.0313	0.000E+00	2	14	0.0217	0.000E+00	2	14	0.0277	0.000E+00	2	14	0.0228	0.000E+00	**	**	**	
	10000	x_6^{13}	2	14	0.0235	0.000E+00	2	14	0.0266	0.000E+00	2	14	0.0397	0.000E+00	2	14	0.0220	0.000E+00	**	**	**	
	10000	x_0^{14}	2	14	0.0381	0.000E+00	2	14	0.0222	0.000E+00	2	14	0.0507	0.000E+00	2	14	0.0232	0.000E+00	**	**	**	
	10000	x_8^{15}	2	14	0.0262	0.000E+00	2	14	0.0202	0.000E+00	2	14	0.0397	0.000E+00	2	14	0.0191	0.000E+00	**	**	**	
	10000	x_0^{16}	2	14	0.0241	0.000E+00	2	14	0.0223	0.000E+00	2	14	0.0631	0.000E+00	2	14	0.0204	0.000E+00	**	**	**	
	10000	x_3^{17}	2	14	0.0189	0.000E+00	2	14	0.0203	0.000E+00	2	14	0.2528	0.000E+00	2	14	0.1916	0.000E+00	**	**	**	
	100000	x_0^{18}	2	14	0.1948	0.000E+00	2	14	0.1800	0.000E+00	2	14	0.2407	0.000E+00	2	14	0.1849	0.000E+00	122	1335	11.7527	0.000E+00
	100000	x_6^{19}	2	14	0.1827	0.000E+00	2	14	0.1871	0.000E+00	2	14	0.2336	0.000E+00	2	14	0.1881	0.000E+00	**	**	**	
	100000	x_0^{20}	2	14	0.1749	0.000E+00	2	14	0.1731	0.000E+00	2	14	0.2253	0.000E+00	2	14	0.1872	0.000E+00	118	1291	11.6740	0.000E+00
	100000	x_3^{21}	2	14	0.1814	0.000E+00	2	14	0.1679	0.000E+00	2	14	0.2329	0.000E+00	2	14	0.1889	0.000E+00	115	1258	11.1667	0.000E+00
	100000	x_0^{22}	2	14	0.1729	0.000E+00	2	14	0.1747	0.000E+00	2	14	0.2218	0.000E+00	2	14	0.1980	0.000E+00	120	1313	11.8100	0.000E+00
	100000	x_6^{23}	2	14	0.1822	0.000E+00	2	14	0.1742	0.000E+00	2	14	0.2364	0.000E+00	2	14	0.1990	0.000E+00	**	**	**	
	100000	x_0^{24}	2	14	0.1912	0.000E+00	2	14	0.1796	0.000E+00	2	14	0.2603	0.000E+00	2	14	0.1779	0.000E+00	**	**	**	

Table 2: Reported results for problems 5.3-5.4

PN	VAR	SP	NHZ1			NHZ2			Algorithm 3			Algorithm 4			Algorithm 5							
			NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT					
5.3	1000	x_1^0	18	44	0.0226	4.970E-09	17	42	0.0184	4.975E-09	77	79	0.0688	8.973E-09	31	59	0.0217	6.857E-09	89	181	0.0401	9.326E-09
	1000	x_2^0	16	35	0.0115	3.435E-09	15	33	0.0209	3.746E-09	71	73	0.0600	8.059E-09	26	31	0.0188	9.121E-09	84	171	0.0588	9.313E-09
	1000	x_3^0	20	44	0.0349	3.791E-09	18	41	0.0120	4.378E-09	76	78	0.0909	7.803E-09	30	50	0.0186	6.377E-09	88	179	0.0444	8.979E-09
	1000	x_4^0	16	35	0.0175	5.780E-09	15	33	0.0141	5.000E-09	76	78	0.0872	7.881E-09	29	43	0.0140	8.160E-09	88	179	0.0662	9.110E-09
	1000	x_5^0	17	38	0.0177	4.874E-09	16	36	0.0150	4.018E-09	77	79	0.0909	8.891E-09	2	15	0.0054	0.000E+00	89	181	0.0434	9.194E-09
	1000	x_6^0	16	35	0.0110	6.388E-09	15	33	0.0222	6.753E-09	74	76	0.0613	7.996E-09	19	27	0.0101	8.731E-09	87	177	0.0394	8.136E-09
	1000	x_7^0	20	44	0.0184	6.663E-09	18	41	0.0120	3.717E-09	76	78	0.1014	7.812E-09	30	50	0.0150	6.378E-09	88	179	0.0415	8.985E-09
	1000	x_8^0	20	44	0.0229	3.791E-09	18	41	0.0120	4.378E-09	76	78	0.0764	7.803E-09	30	50	0.0423	6.377E-09	88	179	0.0669	8.979E-09
	10000	x_0^0	19	46	0.0959	4.715E-09	18	44	0.0784	4.405E-09	81	83	0.3871	9.396E-09	2	16	0.0156	0.000E+00	92	187	0.3094	9.999E-09
	10000	x_1^0	17	37	0.0868	3.259E-09	16	35	0.0672	3.317E-09	75	77	0.3827	8.439E-09	28	37	0.0897	9.486E-09	88	179	0.3015	8.098E-09
	10000	x_2^0	21	46	0.1083	4.537E-09	19	43	0.0833	3.580E-09	80	82	0.3881	8.175E-09	30	45	0.1145	6.494E-09	91	185	0.3049	9.546E-09
	10000	x_3^0	17	37	0.0824	5.484E-09	16	35	0.0825	4.427E-09	80	82	0.3804	8.253E-09	2	15	0.0212	0.000E+00	91	185	0.2986	9.679E-09
	10000	x_4^0	18	40	0.0779	4.624E-09	17	38	0.0955	3.588E-09	81	83	0.4215	9.310E-09	2	15	0.0182	0.000E+00	92	187	0.3377	9.748E-09
	10000	x_5^0	17	37	0.0968	6.060E-09	16	35	0.0799	5.979E-09	78	80	0.3910	8.372E-09	27	42	0.1075	9.176E-09	90	183	0.3068	8.691E-09
	10000	x_6^0	21	46	0.0961	4.801E-09	19	43	0.0793	3.521E-09	80	82	0.3895	8.176E-09	30	45	0.1046	6.537E-09	91	185	0.3099	9.547E-09
	10000	x_7^0	21	46	0.0924	4.537E-09	19	43	0.0965	3.580E-09	80	82	0.4234	8.175E-09	30	45	0.1264	6.494E-09	91	185	0.3106	9.546E-09
	10000	x_8^0	20	48	0.6722	4.473E-09	19	46	0.5667	3.900E-09	85	87	2.9744	9.839E-09	2	16	0.1529	0.000E+00	96	195	2.6085	8.406E-09
5.4	1000	x_0^0	12	47	0.0222	1.332E-09	17	76	0.0318	5.067E-09	33	35	0.0473	6.152E-09	24	74	0.0241	6.530E-10	41	85	0.0267	7.219E-09
	1000	x_1^0	6	22	0.0109	3.918E-09	14	59	0.0347	4.030E-09	34	36	0.0497	9.457E-09	16	35	0.0104	4.588E-09	40	83	0.0229	9.355E-09
	1000	x_2^0	12	46	0.0342	2.161E-09	16	69	0.0137	5.179E-09	33	35	0.0404	8.864E-09	26	72	0.0160	1.994E-09	40	83	0.0312	6.353E-09
	1000	x_3^0	5	19	0.0204	6.532E-09	14	60	0.0194	3.231E-09	32	34	0.0630	7.974E-09	16	31	0.0105	4.533E-09	39	81	0.0219	6.483E-09
	1000	x_4^0	6	24	0.0239	2.010E-09	15	65	0.0150	2.602E-09	32	34	0.0313	8.089E-09	17	36	0.0165	5.108E-09	38	79	0.0245	9.989E-09
	1000	x_5^0	6	22	0.0179	1.370E-09	15	64	0.0300	5.997E-09	34	36	0.0632	6.149E-09	15	31	0.0147	3.636E-09	40	83	0.0227	7.237E-09
	1000	x_6^0	13	49	0.0355	1.117E-09	16	69	0.0203	5.255E-09	33	35	0.0496	8.834E-09	26	72	0.0159	1.806E-09	40	83	0.0276	6.341E-09
	1000	x_7^0	12	46	0.0407	2.161E-09	16	69	0.0132	5.179E-09	33	35	0.0376	8.864E-09	26	72	0.0224	1.994E-09	40	83	0.0249	6.353E-09
	10000	x_0^0	12	47	0.1271	4.212E-09	18	80	0.1257	4.062E-09	35	37	0.2355	5.203E-09	**	**	**	**	42	87	0.1764	9.202E-09
	10000	x_1^0	7	25	0.0881	2.478E-10	15	63	0.0932	3.231E-09	36	38	0.2403	7.998E-09	39	194	0.1988	8.054E-09	42	87	0.1829	6.345E-09
	10000	x_2^0	14	53	0.1378	1.579E-09	17	73	0.1125	4.179E-09	35	37	0.2228	7.485E-09	27	96	0.1461	6.972E-09	41	85	0.1606	7.180E-09
	10000	x_3^0	6	22	0.0746	4.131E-10	15	64	0.0995	2.590E-09	34	36	0.1989	6.744E-09	17	35	0.0933	4.557E-09	40	83	0.1693	7.350E-09
	10000	x_4^0	6	24	0.0845	6.356E-09	15	65	0.1090	8.228E-09	34	36	0.2088	6.841E-09	21	59	0.1090	8.721E-09	40	83	0.1691	6.853E-09
	10000	x_5^0	6	22	0.0906	4.333E-09	16	68	0.1100	4.807E-09	36	38	0.2427	5.201E-09	21	57	0.1095	3.709E-09	41	85	0.1845	8.186E-09
	10000	x_6^0	14	53	0.1443	2.995E-09	17	73	0.1092	4.185E-09	35	37	0.2144	7.483E-09	26	93	0.1437	7.878E-09	41	85	0.1698	7.179E-09
	10000	x_7^0	14	53	0.1237	1.579E-09	17	73	0.1186	4.179E-09	35	37	0.2322	7.485E-09	27	96	0.1370	6.972E-09	41	85	0.1635	7.180E-09
	100000	x_0^0	13	50	0.8396	2.664E-10	19	84	0.8869	3.256E-09	36	38	1.4611	8.509E-09	**	**	**	**	44	91	1.3834	6.614E-09
	100000	x_1^0	7	25	0.4760	7.837E-10	16	67	0.7192	2.590E-09	38	40	1.5550	6.764E-09	**	**	**	**	43	89	1.3369	7.201E-09
	100000	x_2^0	14	53	0.8900	7.199E-09	18	77	0.8009	3.352E-09	37	39	1.5075	6.330E-09	**	**	**	**	42	87	1.3654	8.150E-09
	100000	x_3^0	6	22	0.4440	1.306E-09	15	64	0.6891	8.191E-09	36	38	1.5180	5.704E-09	23	75	0.9450	9.613E-09	41	85	1.2695	8.347E-09
	100000	x_4^0	7	27	0.5149	4.019E-10	16	69	0.7612	6.596E-09	36	38	1.4932	5.786E-09	**	**	**	**	41	85	1.2753	7.832E-09
	100000	x_5^0	7	25	0.4665	2.741E-10	17	72	0.7709	3.854E-09	37	39	1.4781	8.505E-09	**	**	**	**	42	87	1.3085	9.293E-09
	100000	x_6^0	14	53	0.8430	7.646E-09	18	77	0.8034	3.353E-09	37	39	1.5040	6.330E-09	**	**	**	**	42	87	1.3063	8.150E-09
	100000	x_8^0	14	53	0.8622	7.199E-09	18	77	0.8084	3.352E-09	37	39	1.4975	6.330E-09	**	**	**	**	42	87	1.3509	8.150E-09

Table 3: Reported results for problems 5.5-5.6

PN	VAR	SP	NHZ1			NHZ2			Algorithm 3			Algorithm 4			Algorithm 5							
			NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $				
5.5	1000	x_0^1	13	43	0.0539	8.171E-09	14	53	0.0201	1.335E-09	57	130	0.0885	5.518E-09	21	57	0.0283	5.611E-09	45	93	0.0487	7.441E-09
	1000	x_0^2	8	28	0.0178	7.566E-09	6	22	0.0105	1.547E-09	36	38	0.0435	8.170E-09	17	34	0.0196	9.666E-09	43	89	0.0448	7.219E-09
	1000	x_0^3	12	41	0.0275	1.222E-09	15	60	0.0198	8.480E-09	36	38	0.0424	5.491E-09	23	54	0.0199	1.846E-09	42	87	0.0446	9.094E-09
	1000	x_0^4	7	25	0.0115	1.382E-09	5	19	0.0154	4.006E-10	30	32	0.0327	7.672E-09	16	21	0.0126	4.580E-09	38	79	0.0322	7.353E-09
	1000	x_0^5	8	28	0.0204	2.600E-09	6	23	0.0174	2.389E-09	36	38	0.0419	8.855E-09	16	38	0.0187	5.095E-09	43	89	0.0328	7.340E-09
	1000	x_0^6	8	28	0.0281	3.684E-09	6	22	0.0077	6.257E-10	35	37	0.0592	8.780E-09	14	29	0.0109	5.307E-09	42	87	0.0301	8.485E-09
	1000	x_0^7	12	41	0.0269	1.335E-09	14	56	0.0218	6.603E-09	36	38	0.0573	5.489E-09	23	56	0.0233	4.801E-09	42	87	0.0582	9.090E-09
	1000	x_0^8	12	41	0.0392	1.222E-09	15	60	0.0273	8.480E-09	36	38	0.0503	5.491E-09	23	54	0.0179	1.846E-09	42	87	0.0264	9.094E-09
	10000	x_0^1	14	46	0.1582	2.134E-09	14	53	0.1086	4.221E-09	58	131	0.4549	9.563E-09	23	72	0.1581	7.806E-09	46	95	0.2400	9.075E-09
	10000	x_0^2	9	31	0.1176	1.976E-09	6	22	0.0526	4.891E-09	38	40	0.2625	7.758E-09	19	47	0.1270	6.744E-09	44	91	0.2242	8.683E-09
	10000	x_0^3	12	41	0.1475	4.020E-09	16	63	0.1248	4.947E-09	37	39	0.2502	9.514E-09	23	62	0.1646	5.581E-09	44	91	0.2091	6.857E-09
	10000	x_0^4	7	25	0.1184	4.370E-09	5	19	0.0566	1.267E-09	32	34	0.2375	7.285E-09	16	23	0.0886	5.167E-09	40	83	0.2001	6.576E-09
	10000	x_0^5	8	28	0.1227	8.222E-09	6	23	0.0489	7.556E-09	38	40	0.2676	8.409E-09	22	65	0.1486	6.362E-09	44	91	0.2112	8.854E-09
	10000	x_0^6	9	31	0.1122	9.621E-10	6	22	0.0558	1.979E-09	37	39	0.2643	8.337E-09	18	35	0.1117	4.961E-09	44	91	0.2052	6.390E-09
	10000	x_0^7	12	41	0.1570	4.055E-09	17	67	0.1370	4.508E-10	37	39	0.2817	9.513E-09	20	55	0.1397	4.863E-09	44	91	0.1994	6.857E-09
5.6	10000	x_0^1	13	44	0.0961	1.055E-09	18	71	0.9744	1.046E-09	39	41	1.9355	9.034E-09	48	242	3.1903	5.901E-09	45	93	1.6779	8.259E-09
	10000	x_0^2	13	44	0.9041	1.054E-09	20	79	1.0669	3.295E-10	39	41	1.8852	9.034E-09	62	325	4.2017	7.183E-09	45	93	1.7358	8.259E-09
	1000	x_0^3	10	47	0.0348	3.020E-09	19	96	0.0375	3.038E-09	**	**	**	**	27	101	0.0230	3.710E-09	36	77	0.0242	5.946E-09
	1000	x_0^4	5	25	0.0219	8.240E-10	13	70	0.0130	4.965E-09	19	21	0.0177	6.513E-09	19	62	0.0156	9.334E-09	23	49	0.0156	6.394E-09
	1000	x_0^5	10	50	0.0349	1.457E-09	14	76	0.0143	7.215E-09	**	**	**	**	22	76	0.0249	2.179E-09	29	63	0.0201	4.667E-09
	1000	x_0^6	4	21	0.0206	4.343E-09	14	76	0.0143	2.940E-09	18	20	0.0397	5.168E-09	17	47	0.0155	4.829E-09	22	47	0.0247	8.356E-09
	1000	x_0^7	6	31	0.0199	1.542E-10	14	76	0.0202	4.904E-09	18	20	0.0393	9.327E-09	18	54	0.0146	8.251E-09	22	47	0.0258	9.175E-09
	1000	x_0^8	5	25	0.0268	3.326E-10	14	76	0.0147	8.878E-09	19	21	0.0245	4.425E-09	20	60	0.0168	6.204E-09	23	49	0.0252	5.335E-09
	1000	x_0^9	10	50	0.0451	1.461E-09	14	76	0.0307	7.195E-09	**	**	**	**	23	81	0.0253	2.501E-09	29	63	0.0324	4.619E-09
	1000	x_0^{10}	10	50	0.0377	1.457E-09	14	76	0.0225	7.215E-09	**	**	**	**	22	76	0.0190	2.179E-09	29	63	0.0214	4.667E-09
	10000	x_0^1	11	51	0.1370	9.843E-11	19	96	0.1587	9.607E-09	**	**	**	**	28	112	0.2083	8.456E-10	35	74	0.1755	4.792E-09
	10000	x_0^2	5	25	0.0879	2.606E-09	14	75	0.1255	3.519E-09	20	22	0.1163	6.240E-09	**	**	**	**	24	51	0.1351	4.243E-09
	10000	x_0^3	10	50	0.1521	4.614E-09	15	81	0.1278	5.107E-09	**	**	**	**	26	105	0.1690	8.353E-09	29	62	0.1525	8.938E-09
	10000	x_0^4	5	25	0.0801	1.335E-10	14	76	0.1437	9.298E-09	19	21	0.1512	4.952E-09	20	64	0.1503	4.221E-09	23	49	0.1357	5.233E-09
	10000	x_0^5	6	31	0.1095	4.877E-10	15	81	0.1324	3.476E-09	19	21	0.1762	8.937E-09	24	122	0.2277	8.140E-09	23	49	0.1444	6.040E-09
10000	x_0^6	5	25	0.1008	1.052E-09	15	81	0.1293	6.292E-09	20	22	0.1806	4.240E-09	23	92	0.1751	9.202E-09	23	49	0.1302	8.307E-09	
10000	x_0^7	10	50	0.1426	4.616E-09	15	81	0.1310	5.106E-09	**	**	**	**	27	109	0.2162	9.727E-09	29	62	0.1628	9.128E-09	
10000	x_0^8	10	50	0.1602	4.614E-09	15	81	0.1264	5.107E-09	**	**	**	**	26	105	0.2058	8.353E-09	29	62	0.1661	8.938E-09	
100000	x_0^1	11	51	0.9267	3.112E-10	20	101	1.1531	6.809E-09	**	**	**	**	**	**	**	**	40	85	1.5610	6.850E-09	
100000	x_0^2	5	25	0.4708	8.240E-09	15	80	0.9186	2.494E-09	21	23	0.9998	5.979E-09	**	**	**	**	24	51	0.9651	6.831E-09	
100000	x_0^3	11	54	0.9443	1.418E-10	16	86	0.9644	3.619E-09	**	**	**	**	48	214	2.8573	2.840E-09	31	66	1.2214	5.417E-09	
100000	x_0^4	5	25	0.4476	4.222E-10	15	81	0.9184	6.590E-09	20	22	0.9595	4.744E-09	**	**	**	**	23	49	0.9238	8.253E-09	
100000	x_0^5	6	31	0.6034	1.542E-09	16	86	0.9449	2.463E-09	20	22	1.0498	8.563E-09	**	**	**	**	23	49	0.8965	9.789E-09	
100000	x_0^6	5	25	0.4773	3.326E-09	16	86	0.9424	4.459E-09	21	23	1.0778	4.062E-09	**	**	**	**	24	51	0.9698	5.637E-09	
100000	x_0^7	11	54	0.9123	1.418E-10	16	86	0.9618	3.619E-09	**	**	**	**	67	376	4.6664	7.309E-09	31	66	1.2294	5.415E-09	
100000	x_0^8	11	54	0.9208	1.418E-10	16	86	0.9704	3.619E-09	**	**	**	**	48	231	3.1113	5.373E-09	31	66	1.2428	5.417E-09	

Table 4: Reported results for problems 5.7-5.8

PN	VAR	SP	NHZ1			NHZ2			Algorithm 3			Algorithm 4			Algorithm 5							
			NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT					
5.7	1000	x_1^0	8	35	0.0334	2.775E-09	16	72	0.0235	9.335E-09	49	51	0.0502	9.947E-09	2	17	0.0049	0.000E+00	62	127	0.0450	8.489E-09
	1000	x_2^0	6	23	0.0220	1.060E-09	14	61	0.0178	6.569E-09	43	45	0.0587	9.648E-09	25	54	0.0147	4.983E-09	57	117	0.0349	9.500E-09
	1000	x_3^0	11	43	0.0211	2.721E-09	52	214	0.0655	8.902E-09	51	53	0.0791	9.845E-09	28	73	0.0159	4.709E-09	63	129	0.0357	8.441E-09
	1000	x_4^0	6	24	0.0301	3.865E-09	15	65	0.0130	4.887E-09	48	50	0.0435	8.227E-09	19	39	0.0187	4.612E-09	59	121	0.0415	8.626E-09
	1000	x_5^0	15	50	0.0391	8.631E-09	16	70	0.0136	3.682E-09	49	51	0.0862	7.969E-09	2	16	0.0059	0.000E+00	57	117	0.0453	9.144E-09
	1000	x_6^0	6	23	0.0153	3.989E-09	15	65	0.0139	3.512E-09	46	48	0.0601	9.030E-09	17	33	0.0114	6.558E-09	59	121	0.0309	8.000E-09
	1000	x_7^0	11	43	0.0285	3.354E-09	18	78	0.0148	6.249E-09	33	35	0.0462	7.170E-09	27	70	0.0153	3.881E-09	39	81	0.0227	9.334E-09
	1000	x_8^0	11	43	0.0239	2.721E-09	52	214	0.0528	8.902E-09	51	53	0.0700	9.845E-09	28	73	0.0174	4.709E-09	63	129	0.0608	8.441E-09
	10000	x_1^0	8	35	0.1053	8.782E-09	17	76	0.1350	7.460E-09	45	47	0.2643	9.604E-09	2	17	0.0274	0.000E+00	56	115	0.2393	9.695E-09
	10000	x_2^0	6	23	0.0779	6.334E-10	15	65	0.1042	5.253E-09	40	42	0.2478	7.448E-09	16	31	0.1740	9.265E-09	52	107	0.2073	8.195E-09
	10000	x_3^0	15	58	0.1850	4.755E-10	19	82	0.1211	6.980E-09	47	49	0.2511	9.241E-09	2	16	0.0253	0.000E+00	57	117	0.2484	9.367E-09
	10000	x_4^0	7	27	0.0893	2.442E-10	16	69	0.1171	3.863E-09	44	46	0.2518	8.030E-09	2	16	0.0281	0.000E+00	53	109	0.2368	9.232E-09
	10000	x_5^0	5	20	0.0657	6.113E-09	17	74	0.1270	2.948E-09	45	47	0.3011	7.738E-09	2	16	0.0288	0.000E+00	51	105	0.2348	9.764E-09
	10000	x_6^0	6	23	0.0971	3.855E-09	16	69	0.1321	2.803E-09	42	44	0.2439	8.990E-09	30	63	0.1455	4.760E-09	53	109	0.2291	8.486E-09
	10000	x_7^0	15	58	0.1608	5.883E-10	19	82	0.1526	5.687E-09	35	37	0.2342	6.058E-09	2	16	0.0209	0.000E+00	41	85	0.1706	6.790E-09
	10000	x_8^0	15	58	0.1539	4.755E-10	19	82	0.1479	6.980E-09	47	49	0.2684	9.241E-09	2	16	0.0211	0.000E+00	57	117	0.2299	9.367E-09
	10000	x_1^0	9	38	0.7183	5.555E-10	18	80	0.9103	5.978E-09	42	44	1.7353	8.288E-09	2	17	0.1854	0.000E+00	51	105	1.7089	8.906E-09
	10000	x_2^0	15	58	1.0002	2.153E-09	20	86	1.0064	4.709E-09	43	45	1.5680	8.094E-09	29	64	1.0672	5.184E-09	46	95	1.5381	9.300E-09
	10000	x_3^0	7	27	0.5381	7.722E-10	17	73	0.8801	3.092E-09	41	43	1.6956	7.187E-09	2	16	0.1880	0.000E+00	48	99	1.5899	8.366E-09
	10000	x_4^0	6	23	0.4881	4.136E-10	17	74	0.8759	9.321E-09	41	43	1.7175	9.447E-09	2	16	0.2129	0.000E+00	46	95	1.5432	9.622E-09
	10000	x_5^0	6	23	0.4297	1.818E-09	16	69	0.7870	8.861E-09	39	41	1.5927	8.717E-09	2	16	0.2146	0.000E+00	47	97	1.5525	9.614E-09
5.8	10000	x_6^0	15	58	1.0140	2.173E-09	20	86	1.0274	4.641E-09	36	38	1.5412	9.906E-09	2	16	0.1743	0.000E+00	42	87	1.4278	8.021E-09
	10000	x_8^0	15	58	0.9797	2.153E-09	20	86	0.9980	4.709E-09	43	45	1.7685	9.627E-09	2	16	0.1943	0.000E+00	52	107	1.7210	8.281E-09
	1000	x_1^0	18	40	0.0321	5.304E-09	17	38	0.0175	5.941E-09	80	82	0.0642	8.390E-09	25	42	0.0138	9.589E-09	91	185	0.0534	9.805E-09
	1000	x_2^0	16	35	0.0370	4.066E-09	15	33	0.0261	4.493E-09	71	73	0.0659	8.586E-09	25	30	0.0247	9.257E-09	84	171	0.0618	9.753E-09
	1000	x_3^0	17	37	0.0260	5.806E-09	16	35	0.0158	6.002E-09	77	79	0.0986	8.817E-09	28	43	0.0160	9.458E-09	89	181	0.0542	9.498E-09
	1000	x_4^0	17	37	0.0370	5.494E-09	16	35	0.0108	5.609E-09	77	79	0.0924	7.954E-09	27	37	0.0184	6.295E-09	89	181	0.0622	8.897E-09
	1000	x_5^0	17	37	0.0425	7.602E-09	16	35	0.0129	7.391E-09	79	81	0.0846	8.459E-09	28	44	0.0149	5.339E-09	91	185	0.0533	8.358E-09
	1000	x_6^0	16	35	0.0317	9.939E-09	16	35	0.0110	3.069E-09	74	76	0.0679	9.311E-09	28	36	0.0275	9.325E-09	87	177	0.0604	9.062E-09
	1000	x_7^0	17	37	0.0203	5.814E-09	16	35	0.0289	6.012E-09	77	79	0.0958	8.830E-09	29	44	0.0259	6.960E-09	89	181	0.0506	9.506E-09
	1000	x_8^0	17	37	0.0426	5.806E-09	16	35	0.0213	6.002E-09	77	79	0.0829	8.817E-09	28	43	0.0147	9.458E-09	89	181	0.0629	9.498E-09
	10000	x_1^0	19	42	0.1353	5.031E-09	18	40	0.1194	5.261E-09	84	86	0.4541	8.785E-09	2	15	0.0232	0.000E+00	95	193	0.3775	8.266E-09
	10000	x_2^0	17	37	0.1539	3.858E-09	16	35	0.0928	3.978E-09	75	77	0.4473	8.990E-09	21	31	0.0944	7.573E-09	88	179	0.3477	8.465E-09
	10000	x_3^0	18	39	0.1564	5.512E-09	17	37	0.0846	5.318E-09	81	83	0.4793	9.239E-09	28	47	0.1327	6.659E-09	93	189	0.3609	8.037E-09
	10000	x_4^0	18	39	0.1518	5.212E-09	17	37	0.0982	4.967E-09	81	83	0.4458	8.329E-09	26	41	0.1403	8.512E-09	92	187	0.3528	9.417E-09
	10000	x_5^0	18	39	0.1600	7.212E-09	17	37	0.0965	6.544E-09	83	85	0.4688	8.858E-09	2	15	0.0267	0.000E+00	94	191	0.3804	8.818E-09
	10000	x_6^0	17	37	0.1332	9.429E-09	16	35	0.0857	9.704E-09	78	80	0.4106	9.750E-09	29	44	0.1539	7.285E-09	90	183	0.3826	9.652E-09
	10000	x_7^0	18	39	0.1471	5.512E-09	17	37	0.0886	5.319E-09	81	83	0.4430	9.240E-09	28	47	0.1422	6.212E-09	93	189	0.3841	8.038E-09
	10000	x_8^0	18	39	0.1506	5.512E-09	17	37	0.1117	5.318E-09	81	83	0.4512	9.239E-09	28	47	0.1417	6.659E-09	93	189	0.3702	8.037E-09
	10000	x_1^0	20	44	1.0280	4.773E-09	19	42	0.6690	4.658E-09	88	90	3.5263	9.199E-09	2	15	0.1965	0.000E+00	98	199	3.0952	8.702E-09
	10000	x_2^0	18	39	0.8987	3.660E-09	17	37	0.6872	3.522E-09	79	81	3.1581	9.414E-09	27	39	0.8584	5.818E-09	91	185	2.8589	8.994E-09
	10000	x_3^0	19	41	1.0106	5.229E-09	18	39	0.6872	4.709E-09	85	87	3.3825	9.675E-09	2	15	0.1775	0.000E+00	96	195	2.9650	8.470E-09
	10000	x_4^0	19	41	0.9094	4.945E-09	18	39	0.5777	4.398E-09	85	87	3.3319	8.722E-09	2	15	0.1748	0.000E+00	95	193	2.9972	9.927E-09
	10000	x_5^0	19	41	0.9241	6.842E-09	18	39	0.6095	5.794E-09	87	89	3.4420	9.276E-09	2	15	0.1943	0.000E+00	97	197	3.0970	9.285E-09
	10000	x_6^0	19	41	0.9441	8.945E-09	17	37	0.6183	8.592E-09	83	85	3.2618	7.745E-09	28	43	0.8447	9.966E-09	94	191	2.8241	8.156E-09
	10000	x_7^0	19	41	0.9450	5.229E-09	18	39	0.6399	4.710E-09	85	87	3.3628	9.675E-09	2	15	0.1888	0.000E+00	96	195	2.9323	8.470E-09
	10000	x_8^0	19	41	0.9199	5.229E-09	18	39	0.6125	4.709E-09	85	87	3.4180	9.675E-09	2	15	0.1719	0.000E+00	96	195	2.9880	8.470E-09

Table 5: Reported results for problems 5.9-5.10

PN	VAR	SP	NHZ1			NHZ2			Algorithm 3			Algorithm 4			Algorithm 5			
			NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	$\ F_k\ $	NIT	FE	PT	
5.9	1000	x_1^1	18	39	0.0582	4.829E-09	17	37	0.0169	4.649E-09	80	82	0.1399	9.403E-09	28	43	0.0272	5.826E-09
	1000	x_6^1	18	39	0.0508	9.596E-09	17	37	0.0180	9.238E-09	83	85	0.0839	8.158E-09	27	42	0.0311	6.308E-09
	1000	x_3^3	18	39	0.0584	8.200E-09	17	37	0.0229	7.895E-09	82	84	0.1151	9.190E-09	30	50	0.0385	8.487E-09
	1000	x_4^4	18	39	0.0525	8.130E-09	17	37	0.0159	7.827E-09	82	84	0.1082	9.111E-09	30	50	0.0975	7.220E-09
	1000	x_6^6	18	39	0.0446	6.297E-09	17	37	0.0176	6.062E-09	81	83	0.1133	9.304E-09	27	45	0.0321	5.629E-09
	1000	x_3^6	18	39	0.0394	9.046E-09	17	37	0.0282	8.709E-09	83	85	0.1319	7.690E-09	30	48	0.0227	7.409E-09
	1000	x_6^6	18	39	0.0569	8.197E-09	17	37	0.0187	7.891E-09	82	84	0.0902	9.186E-09	30	50	0.0484	8.441E-09
	1000	x_3^8	18	39	0.0488	8.200E-09	17	37	0.0260	7.895E-09	82	84	0.0972	9.190E-09	30	50	0.0296	8.487E-09
	10000	x_1^1	19	41	0.2188	4.592E-09	18	39	0.1480	4.126E-09	84	86	0.6908	9.859E-09	31	65	0.2255	9.999E-09
	10000	x_6^1	19	41	0.2014	9.129E-09	18	39	0.1377	8.204E-09	87	89	0.6472	8.557E-09	79	432	0.7517	5.777E-09
	10000	x_3^3	19	41	0.2219	7.800E-09	18	39	0.1426	7.009E-09	86	88	0.6907	9.637E-09	55	259	0.4876	9.096E-09
	10000	x_4^4	19	41	0.2664	7.734E-09	18	39	0.1588	6.950E-09	86	88	0.6872	9.557E-09	**	**	**	**
	10000	x_6^6	19	41	0.2266	5.991E-09	18	39	0.1378	5.384E-09	85	87	0.6788	9.758E-09	**	**	**	**
	10000	x_3^6	19	41	0.2155	8.606E-09	18	39	0.1543	7.734E-09	87	89	0.6783	8.066E-09	**	**	**	**
	10000	x_6^6	19	41	0.2164	7.799E-09	18	39	0.1361	7.009E-09	86	88	0.6891	9.637E-09	**	**	**	**
5.10	1000	x_3^1	20	43	1.6532	4.356E-09	19	41	1.2015	3.654E-09	89	91	5.9290	7.832E-09	57	295	5.3832	6.965E-09
	10000	x_6^1	20	43	1.6984	8.661E-09	19	41	1.1545	7.264E-09	91	93	6.0572	8.960E-09	34	87	2.2536	6.882E-09
	10000	x_3^3	20	43	1.6704	7.400E-09	19	41	1.1713	6.206E-09	91	93	6.1061	7.655E-09	**	**	**	**
	10000	x_4^4	20	43	1.6590	7.338E-09	19	41	1.1914	6.154E-09	91	93	6.0510	7.591E-09	27	77	1.9278	6.120E-09
	10000	x_6^6	20	43	1.7296	5.684E-09	19	41	1.2173	4.767E-09	90	92	6.0280	7.752E-09	39	144	3.0522	6.474E-09
	10000	x_3^6	20	43	1.7700	8.165E-09	19	41	1.1896	6.848E-09	91	93	6.0965	8.447E-09	28	73	2.5073	7.063E-09
	10000	x_6^6	20	43	1.7021	7.400E-09	19	41	1.1797	6.206E-09	91	93	6.0493	7.655E-09	**	**	**	**
	10000	x_3^8	20	43	1.7571	7.400E-09	19	41	1.1979	6.206E-09	91	93	6.0533	7.655E-09	**	**	**	**
	1000	x_1^1	1	13	0.0272	0.000E+00	1	13	0.0130	0.000E+00	1	13	0.0089	0.000E+00	1	13	0.0062	0.000E+00
	1000	x_6^1	15	177	0.0586	6.013E-09	15	192	0.0431	2.616E-09	7	85	0.0618	0.000E+00	3	32	0.0079	0.000E+00
	1000	x_3^3	1	13	0.0163	0.000E+00	1	13	0.0094	0.000E+00	1	13	0.0090	0.000E+00	**	**	**	**
	1000	x_6^6	2	25	0.0238	0.000E+00	2	25	0.0088	0.000E+00	2	25	0.0217	0.000E+00	2	24	0.0064	0.000E+00
	1000	x_3^6	1	13	0.0140	0.000E+00	1	13	0.0071	0.000E+00	1	13	0.0155	0.000E+00	**	**	**	**
	1000	x_6^6	15	178	0.0741	5.407E-09	4	49	0.0110	0.000E+00	3	37	0.0226	0.000E+00	2	21	0.0048	0.000E+00
	1000	x_1^6	1	13	0.0081	0.000E+00	1	13	0.0072	0.000E+00	1	13	0.0141	0.000E+00	**	**	**	**
	1000	x_3^8	1	13	0.0140	0.000E+00	1	13	0.0094	0.000E+00	1	13	0.0194	0.000E+00	**	**	**	**
	10000	x_6^8	1	13	0.0590	0.000E+00	1	13	0.0287	0.000E+00	1	13	0.0549	0.000E+00	1	13	0.0179	0.000E+00
	10000	x_3^8	16	169	0.4046	5.907E-09	21	240	0.3612	3.780E-09	3	32	0.0913	0.000E+00	3	31	0.0640	0.000E+00
	10000	x_6^8	1	13	0.0698	0.000E+00	1	13	0.0378	0.000E+00	1	13	0.0448	0.000E+00	2	25	0.0499	0.000E+00
	10000	x_3^8	2	25	0.0877	0.000E+00	2	25	0.0642	0.000E+00	2	25	0.0892	0.000E+00	2	24	0.0572	0.000E+00
	10000	x_6^8	1	13	0.0361	0.000E+00	1	13	0.0207	0.000E+00	1	13	0.0632	0.000E+00	2	25	0.0518	0.000E+00
	10000	x_3^8	18	193	0.4561	3.051E-09	4	49	0.0785	0.000E+00	4	49	0.1368	0.000E+00	2	21	0.0529	0.000E+00
	10000	x_6^8	1	13	0.0471	0.000E+00	1	13	0.0337	0.000E+00	1	13	0.0390	0.000E+00	2	25	0.0396	0.000E+00
	10000	x_3^8	1	13	0.0693	0.000E+00	1	13	0.0235	0.000E+00	1	13	0.0612	0.000E+00	2	25	0.0502	0.000E+00
	10000	x_6^8	1	13	0.2730	0.000E+00	1	13	0.2042	0.000E+00	1	13	0.2838	0.000E+00	1	13	0.1995	0.000E+00
	10000	x_3^8	19	197	3.7782	8.243E-09	28	283	3.8789	9.690E-09	4	38	0.8226	0.000E+00	3	31	0.5331	0.000E+00
	10000	x_6^8	1	13	0.2940	0.000E+00	1	13	0.2325	0.000E+00	1	13	0.3043	0.000E+00	2	25	0.3949	0.000E+00
	10000	x_3^8	2	25	0.5794	0.000E+00	2	25	0.3728	0.000E+00	2	25	0.3984	0.000E+00	2	23	0.3984	0.000E+00
	10000	x_6^8	1	13	0.2526	0.000E+00	1	13	0.2024	0.000E+00	1	13	0.3088	0.000E+00	2	25	0.3661	0.000E+00
	10000	x_3^8	4	36	0.8651	0.000E+00	23	237	3.2365	4.230E-09	3	33	0.7757	0.000E+00	2	20	0.3789	0.000E+00
	10000	x_6^8	1	13	0.2735	0.000E+00	1	13	0.2235	0.000E+00	1	13	0.2871	0.000E+00	2	25	0.4063	0.000E+00
	10000	x_3^8	1	13	0.3046	0.000E+00	1	13	0.2482	0.000E+00	1	13	0.3264	0.000E+00	2	25	0.4166	0.000E+00
	10000	x_6^8	1	13	0.000E+00	0.000E+00	1	13	0.000E+00	0.000E+00	1	13	0.000E+00	0.000E+00	17	93	1.7999	0.000E+00