



**ภาคผนวก**

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

Copyright© by Chiang Mai University

All rights reserved

ภาคผนวก ก

ค่า Whittaker Parabolic Cylinder Function

ตารางที่ 34 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $-5 \leq a \leq -1$ ,  $-0.2 \leq x \leq -5$

x	U(-5,x)	U(-4.5,x)	U(-4,x)	U(-3.5,x)	U(-3,x)	U(-2.5,x)	U(-2,x)	U(-1.5,x)	U(-1.0,x)
-5.0	-9.615	9.228E-1	7.217	-2.124E-1	-7.563	4.633E-2	1.224E+1	-9.652E-3	-3.575E+1
-4.9	-8.827	1.077	6.450	-2.546E-1	-6.508	5.689E-2	1.018E+1	-1.212E-2	-2.890E+1
-4.8	-8.126	1.247	5.812	-3.031E-1	-5.649	6.945E-2	8.521	-1.513E-2	-2.350E+1
-4.7	-7.488	1.432	5.277	-3.585E-1	-4.947	8.427E-2	7.189	-1.878E-2	-1.923E+1
-4.6	-6.889	1.632	4.823	-4.212E-1	-4.370	1.016E-1	6.112	-2.319E-2	-1.583E+1
-4.5	-6.310	1.846	4.431	-4.913E-1	-3.894	1.219E-1	5.237	-2.848E-2	-1.311E+1
-4.4	-5.736	2.069	4.086	-5.692E-1	-3.498	1.452E-1	4.522	-3.479E-2	-1.093E+1
-4.3	-5.153	2.299	3.776	-6.546E-1	-3.167	1.719E-1	3.937	-4.226E-2	-9.174
-4.2	-4.550	2.532	3.490	-7.474E-1	-2.888	2.023E-1	3.455	-5.105E-2	-7.750
-4.1	-3.921	2.763	3.218	-8.469E-1	-2.649	2.365E-1	3.057	-6.133E-2	-6.591
-4.0	-3.261	2.985	2.952	-9.524E-1	-2.442	2.747E-1	2.727	-7.326E-2	-5.643
-3.9	-2.569	3.193	2.687	-1.063	-2.260	3.171E-1	2.451	-8.703E-2	-4.866
-3.8	-1.846	3.378	2.416	-1.176	-2.096	3.636E-1	2.220	-1.028E-1	-4.226
-3.7	-1.097	3.533	2.137	-1.291	-1.945	4.141E-1	2.024	-1.207E-1	-3.697
-3.6	-3.318E-1	3.650	1.845	-1.404	-1.803	4.684E-1	1.858	-1.410E-1	-3.257
-3.5	4.392E-1	3.721	1.539	-1.514	-1.664	5.262E-1	1.714	-1.637E-1	-2.891
-3.4	1.201	3.739	1.218	-1.618	-1.527	5.869E-1	1.589	-1.890E-1	-2.584
-3.3	1.938	3.696	8.846E-1	-1.711	-1.388	6.499E-1	1.478	-2.168E-1	-2.327
-3.2	2.631	3.588	5.397E-1	-1.791	-1.245	7.143E-1	1.378	-2.474E-1	-2.109
-3.1	3.259	3.411	1.872E-1	-1.854	-1.097	7.791E-1	1.285	-2.805E-1	-1.925
-3.0	3.803	3.162	-1.683E-1	-1.897	-9.422E-1	8.432E-1	1.198	-3.162E-1	-1.768
-2.9	4.242	2.842	-5.208E-1	-1.916	-7.805E-1	9.051E-1	1.114	-3.542E-1	-1.633
-2.8	4.559	2.455	-8.632E-1	-1.909	-6.119E-1	9.635E-1	1.031	-3.944E-1	-1.516
-2.7	4.737	2.005	-1.188	-1.872	-4.369E-1	1.017	9.470E-1	-4.364E-1	-1.413
-2.6	4.765	1.502	-1.487	-1.804	-2.568E-1	1.063	8.619E-1	-4.798E-1	-1.323
-2.5	4.636	9.563E-1	-1.752	-1.703	-7.338E-2	1.101	7.740E-1	-5.240E-1	-1.241
-2.4	4.348	3.832E-1	-1.974	-1.569	1.110E-1	1.128	6.828E-1	-5.686E-1	-1.167
-2.3	3.906	-2.014E-1	-2.145	-1.404	2.937E-1	1.143	5.878E-1	-6.129E-1	-1.097
-2.2	3.321	-7.796E-1	-2.259	-1.207	4.714E-1	1.145	4.889E-1	-6.560E-1	-1.031
-2.1	2.610	-1.332	-2.311	-9.832E-1	6.406E-1	1.132	3.861E-1	-6.973E-1	-9.676E-1
-2.0	1.798	-1.839	-2.295	-7.358E-1	7.977E-1	1.104	2.799E-1	-7.358E-1	-9.049E-1
-1.9	9.148E-1	-2.282	-2.211	-4.700E-1	9.388E-1	1.059	1.708E-1	-7.706E-1	-8.423E-1
-1.8	-5.758E-3	-2.644	-2.058	-1.922E-1	1.060	9.965E-1	5.998E-2	-8.007E-1	-7.788E-1
-1.7	-9.259E-1	-2.907	-1.841	9.080E-2	1.159	9.177E-1	-5.158E-2	-8.254E-1	-7.139E-1
-1.6	-1.807	-3.062	-1.563	3.712E-1	1.230	8.226E-1	-1.625E-1	-8.437E-1	-6.470E-1
-1.5	-2.609	-3.098	-1.232	6.410E-1	1.273	7.122E-1	-2.711E-1	-8.547E-1	-5.778E-1
-1.4	-3.295	-3.013	-8.598E-1	8.920E-1	1.285	5.881E-1	-3.759E-1	-8.577E-1	-5.061E-1
-1.3	-3.834	-2.808	-4.572E-1	1.116	1.265	4.522E-1	-4.750E-1	-8.520E-1	-4.318E-1
-1.2	-4.197	-2.488	-3.842E-2	1.306	1.212	3.070E-1	-5.666E-1	-8.372E-1	-3.550E-1
-1.1	-4.367	-2.066	3.817E-1	1.455	1.128	1.552E-1	-6.489E-1	-8.129E-1	-2.760E-1
-1.0	-4.332	-1.558	7.878E-1	1.558	1.013	-2.510E-16	-7.202E-1	-7.788E-1	-1.950E-1
-0.9	-4.093	-9.832E-1	1.164	1.610	8.699E-1	-1.552E-1	-7.789E-1	-7.350E-1	-1.126E-1
-0.8	-3.657	-3.668E-1	1.497	1.609	7.029E-1	-3.068E-1	-8.236E-1	-6.817E-1	-2.929E-2
-0.7	-3.046	2.655E-1	1.772	1.554	5.159E-1	-4.512E-1	-8.533E-1	-6.193E-1	5.425E-2
-0.6	-2.287	8.862E-1	1.979	1.448	3.141E-1	-5.849E-1	-8.669E-1	-5.484E-1	1.373E-1
-0.5	-1.416	1.468	2.108	1.292	1.033E-1	-7.046E-1	-8.640E-1	-4.697E-1	2.191E-1
-0.4	-4.750E-1	1.985	2.155	1.092	-1.106E-1	-8.071E-1	-8.443E-1	-3.843E-1	2.989E-1
-0.3	4.891E-1	2.413	2.117	8.536E-1	-3.212E-1	-8.898E-1	-8.082E-1	-2.933E-1	3.758E-1
-0.2	1.429	2.734	1.995	5.861E-1	-5.222E-1	-9.505E-1	-7.561E-1	-1.980E-1	4.490E-1

ตารางที่ 35 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $-5 \leq a \leq -1$ ,  $-0.1 \leq x \leq 5$

x	U(-5,x)	U(-4.5,x)	U(-4,x)	U(-3.5,x)	U(-3,x)	U(-2.5,x)	U(-2,x)	U(-1.5,x)	U(-1.0,x)
-0.1	2.298	2.933	1.793	2.982E-1	-7.077E-1	-9.875E-1	-6.890E-1	-9.975E-2	5.178E-1
0.0	3.052	3.000	1.520	0.000	-8.721E-1	-1.000	-6.081E-1	0.000	5.814E-1
0.1	3.655	2.933	1.187	-2.983E-1	-1.010	-9.875E-1	-5.152E-1	9.975E-2	6.392E-1
0.2	4.075	2.734	8.061E-1	-5.861E-1	-1.118	-9.505E-1	-4.119E-1	1.980E-1	6.906E-1
0.3	4.293	2.413	3.933E-1	-8.536E-1	-1.193	-8.898E-1	-3.005E-1	2.933E-1	7.352E-1
0.4	4.299	1.985	-3.518E-2	-1.092	-1.232	-8.071E-1	-1.831E-1	3.843E-1	7.727E-1
0.5	4.092	1.468	-4.622E-1	-1.292	-1.235	-7.046E-1	-6.213E-2	4.697E-1	8.027E-1
0.6	3.684	8.862E-1	-8.712E-1	-1.448	-1.202	-5.849E-1	6.004E-2	5.484E-1	8.252E-1
0.7	3.095	2.655E-1	-1.246	-1.554	-1.134	-4.512E-1	1.811E-1	6.193E-1	8.402E-1
0.8	2.357	-3.668E-1	-1.573	-1.609	-1.033	-3.068E-1	2.987E-1	6.817E-1	8.479E-1
0.9	1.504	-9.832E-1	-1.840	-1.610	-9.029E-1	-1.552E-1	4.109E-1	7.350E-1	8.484E-1
1.0	5.799E-1	-1.558	-2.037	-1.558	-7.476E-1	0.000	5.157E-1	7.788E-1	8.422E-1
1.1	-3.719E-1	-2.066	-2.158	-1.455	-5.719E-1	1.552E-1	6.115E-1	8.129E-1	8.297E-1
1.2	-1.306	-2.488	-2.199	-1.306	-3.808E-1	3.070E-1	6.969E-1	8.372E-1	8.114E-1
1.3	-2.181	-2.808	-2.161	-1.116	-1.796E-1	4.522E-1	7.710E-1	8.520E-1	7.879E-1
1.4	-2.955	-3.013	-2.045	-8.920E-1	2.627E-2	5.881E-1	8.329E-1	8.577E-1	7.598E-1
1.5	-3.598	-3.098	-1.858	-6.410E-1	2.315E-1	7.122E-1	8.822E-1	8.547E-1	7.279E-1
1.6	-4.081	-3.062	-1.608	-3.712E-1	4.311E-1	8.226E-1	9.189E-1	8.437E-1	6.928E-1
1.7	-4.387	-2.907	-1.303	-9.080E-2	6.205E-1	9.177E-1	9.431E-1	8.254E-1	6.552E-1
1.8	-4.506	-2.644	-9.556E-1	1.922E-1	7.959E-1	9.965E-1	9.553E-1	8.007E-1	6.158E-1
1.9	-4.437	-2.282	-5.779E-1	4.700E-1	9.539E-1	1.059	9.562E-1	7.706E-1	5.752E-1
2.0	-4.187	-1.839	-1.823E-1	7.358E-1	1.092	1.104	9.465E-1	7.358E-1	5.340E-1
2.1	-3.769	-1.332	2.189E-1	9.832E-1	1.208	1.132	9.274E-1	6.973E-1	4.929E-1
2.2	-3.206	-7.796E-1	6.138E-1	1.207	1.302	1.145	9.000E-1	6.560E-1	4.522E-1
2.3	-2.521	-2.014E-1	9.917E-1	1.404	1.372	1.143	8.655E-1	6.129E-1	4.125E-1
2.4	-1.743	3.833E-1	1.343	1.569	1.419	1.128	8.251E-1	5.686E-1	3.741E-1
2.5	-9.039E-1	9.564E-1	1.660	1.703	1.444	1.101	7.801E-1	5.240E-1	3.373E-1
2.6	-3.320E-2	1.502	1.937	1.804	1.449	1.063	7.317E-1	4.798E-1	3.025E-1
2.7	8.387E-1	2.005	2.170	1.872	1.434	1.017	6.810E-1	4.364E-1	2.697E-1
2.8	1.684	2.455	2.355	1.909	1.403	9.635E-1	6.291E-1	3.944E-1	2.391E-1
2.9	2.479	2.842	2.492	1.916	1.357	9.051E-1	5.769E-1	3.542E-1	2.108E-1
3.0	3.202	3.162	2.582	1.897	1.299	8.432E-1	5.253E-1	3.162E-1	1.849E-1
3.1	3.838	3.411	2.627	1.854	1.231	7.791E-1	4.750E-1	2.805E-1	1.612E-1
3.2	4.374	3.588	2.630	1.791	1.155	7.143E-1	4.266E-1	2.474E-1	1.399E-1
3.3	4.804	3.696	2.596	1.711	1.075	6.499E-1	3.806E-1	2.168E-1	1.206E-1
3.4	5.125	3.739	2.528	1.618	9.915E-1	5.869E-1	3.373E-1	1.890E-1	1.035E-1
3.5	5.338	3.721	2.432	1.514	9.070E-1	5.262E-1	2.970E-1	1.637E-1	8.834E-2
3.6	5.447	3.650	2.313	1.404	8.231E-1	4.684E-1	2.599E-1	1.410E-1	7.498E-2
3.7	5.461	3.533	2.177	1.291	7.411E-1	4.141E-1	2.260E-1	1.207E-1	6.331E-2
3.8	5.390	3.378	2.028	1.176	6.622E-1	3.636E-1	1.953E-1	1.028E-1	5.317E-2
3.9	5.243	3.193	1.871	1.063	5.873E-1	3.171E-1	1.677E-1	8.703E-2	4.441E-2
4.0	5.033	2.985	1.711	9.524E-1	5.172E-1	2.747E-1	1.431E-1	7.326E-2	3.690E-2
4.1	4.773	2.763	1.550	8.469E-1	4.522E-1	2.365E-1	1.214E-1	6.133E-2	3.050E-2
4.2	4.475	2.532	1.393	7.474E-1	3.926E-1	2.023E-1	1.024E-1	5.105E-2	2.508E-2
4.3	4.151	2.299	1.241	6.546E-1	3.385E-1	1.719E-1	8.587E-2	4.226E-2	2.051E-2
4.4	3.811	2.069	1.097	5.692E-1	2.899E-1	1.452E-1	7.158E-2	3.479E-2	1.669E-2
4.5	3.464	1.846	9.617E-1	4.913E-1	2.467E-1	1.219E-1	5.931E-2	2.848E-2	1.351E-2
4.6	3.120	1.632	8.368E-1	4.212E-1	2.085E-1	1.016E-1	4.887E-2	2.319E-2	1.088E-2
4.7	2.784	1.432	7.228E-1	3.585E-1	1.751E-1	8.427E-2	4.003E-2	1.878E-2	8.710E-3
4.8	2.463	1.247	6.197E-1	3.031E-1	1.461E-1	6.945E-2	3.260E-2	1.513E-2	6.940E-3
4.9	2.161	1.077	5.275E-1	2.546E-1	1.211E-1	5.689E-2	2.640E-2	1.212E-2	5.501E-3
5.0	1.880	9.228E-1	4.459E-1	2.124E-1	9.980E-2	4.633E-2	2.126E-2	9.652E-3	4.338E-3

ตารางที่ 36 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $-0.9 \leq a \leq -0.1$ ,  $-0.2 \leq x \leq -5$

x	U(-0.9,x)	U(-0.8,x)	U(-0.7,x)	U(-0.6,x)	U(-0.5,x)	U(-0.4,x)	U(-0.3,x)	U(-0.2,x)	U(-0.1,x)
-5.0	-3.961E+1	-3.967E+1	-3.434E+1	-2.180E+1	1.931E-3	3.332E+1	8.060E+1	1.445E+2	2.276E+2
-4.9	-3.193E+1	-3.190E+1	-2.755E+1	-1.745E+1	2.473E-3	2.654E+1	6.405E+1	1.145E+2	1.801E+2
-4.8	-2.590E+1	-2.581E+1	-2.223E+1	-1.404E+1	3.151E-3	2.126E+1	5.118E+1	9.130E+1	1.432E+2
-4.7	-2.113E+1	-2.100E+1	-1.804E+1	-1.137E+1	3.996E-3	1.712E+1	4.112E+1	7.317E+1	1.145E+2
-4.6	-1.735E+1	-1.719E+1	-1.473E+1	-9.252	5.042E-3	1.387E+1	3.322E+1	5.897E+1	9.205E+1
-4.5	-1.433E+1	-1.415E+1	-1.209E+1	-7.574	6.330E-3	1.130E+1	2.699E+1	4.778E+1	7.439E+1
-4.4	-1.190E+1	-1.173E+1	-9.986	-6.236	7.907E-3	9.258	2.205E+1	3.893E+1	6.045E+1
-4.3	-9.956	-9.774	-8.297	-5.164	9.828E-3	7.630	1.812E+1	3.189E+1	4.939E+1
-4.2	-8.379	-8.197	-6.935	-4.301	1.216E-2	6.326	1.497E+1	2.628E+1	4.057E+1
-4.1	-7.098	-6.918	-5.831	-3.603	1.496E-2	5.277	1.244E+1	2.177E+1	3.352E+1
-4.0	-6.052	-5.876	-4.933	-3.035	1.832E-2	4.429	1.040E+1	1.814E+1	2.784E+1
-3.9	-5.195	-5.022	-4.199	-2.570	2.232E-2	3.742	8.750	1.520E+1	2.326E+1
-3.8	-4.489	-4.319	-3.595	-2.189	2.705E-2	3.182	7.405	1.282E+1	1.954E+1
-3.7	-3.906	-3.739	-3.096	-1.873	3.263E-2	2.726	6.306	1.087E+1	1.651E+1
-3.6	-3.421	-3.257	-2.681	-1.611	3.916E-2	2.351	5.405	9.276	1.403E+1
-3.5	-3.016	-2.854	-2.336	-1.391	4.677E-2	2.044	4.664	7.964	1.200E+1
-3.4	-2.678	-2.517	-2.045	-1.206	5.558E-2	1.792	4.052	6.881	1.032E+1
-3.3	-2.392	-2.232	-1.800	-1.048	6.571E-2	1.584	3.546	5.983	8.927
-3.2	-2.150	-1.990	-1.591	-9.132E-1	7.731E-2	1.414	3.125	5.237	7.771
-3.1	-1.945	-1.784	-1.411	-7.959E-1	9.049E-2	1.274	2.776	4.615	6.808
-3.0	-1.768	-1.606	-1.256	-6.930E-1	1.054E-1	1.159	2.485	4.096	6.002
-2.9	-1.615	-1.452	-1.120	-6.016E-1	1.222E-1	1.066	2.242	3.660	5.326
-2.8	-1.482	-1.316	-1.001	-5.193E-1	1.409E-1	9.912E-1	2.040	3.294	4.757
-2.7	-1.365	-1.196	-8.933E-1	-4.441E-1	1.616E-1	9.319E-1	1.873	2.987	4.276
-2.6	-1.260	-1.088	-7.961E-1	-3.743E-1	1.845E-1	8.859E-1	1.733	2.728	3.869
-2.5	-1.165	-9.900E-1	-7.068E-1	-3.086E-1	2.096E-1	8.513E-1	1.618	2.510	3.524
-2.4	-1.078	-8.995E-1	-6.237E-1	-2.460E-1	2.369E-1	8.267E-1	1.523	2.326	3.231
-2.3	-9.971E-1	-8.147E-1	-5.451E-1	-1.854E-1	2.665E-1	8.106E-1	1.446	2.171	2.981
-2.2	-9.202E-1	-7.341E-1	-4.701E-1	-1.261E-1	2.982E-1	8.021E-1	1.384	2.040	2.767
-2.1	-8.462E-1	-6.566E-1	-3.974E-1	-6.762E-2	3.320E-1	8.001E-1	1.334	1.930	2.584
-2.0	-7.738E-1	-5.811E-1	-3.263E-1	-9.473E-3	3.679E-1	8.036E-1	1.295	1.838	2.428
-1.9	-7.023E-1	-5.068E-1	-2.562E-1	4.859E-2	4.056E-1	8.121E-1	1.265	1.760	2.293
-1.8	-6.308E-1	-4.330E-1	-1.866E-1	1.068E-1	4.449E-1	8.246E-1	1.242	1.695	2.176
-1.7	-5.587E-1	-3.593E-1	-1.173E-1	1.652E-1	4.855E-1	8.405E-1	1.226	1.640	2.076
-1.6	-4.857E-1	-2.853E-1	-4.798E-2	2.238E-1	5.273E-1	8.591E-1	1.216	1.593	1.988
-1.5	-4.114E-1	-2.109E-1	2.133E-2	2.826E-1	5.698E-1	8.797E-1	1.209	1.554	1.911
-1.4	-3.357E-1	-1.360E-1	9.061E-2	3.412E-1	6.126E-1	9.018E-1	1.205	1.520	1.842
-1.3	-2.587E-1	-6.060E-2	1.597E-1	3.994E-1	6.554E-1	9.247E-1	1.204	1.491	1.781
-1.2	-1.804E-1	1.496E-2	2.283E-1	4.569E-1	6.977E-1	9.478E-1	1.204	1.465	1.726
-1.1	-1.012E-1	9.046E-2	2.962E-1	5.133E-1	7.390E-1	9.706E-1	1.205	1.441	1.675
-1.0	-2.134E-2	1.655E-1	3.629E-1	5.681E-1	7.788E-1	9.923E-1	1.206	1.419	1.627
-0.9	5.861E-2	2.396E-1	4.279E-1	6.210E-1	8.167E-1	1.013	1.207	1.397	1.582
-0.8	1.382E-1	3.123E-1	4.908E-1	6.714E-1	8.521E-1	1.031	1.206	1.376	1.539
-0.7	2.167E-1	3.830E-1	5.510E-1	7.189E-1	8.847E-1	1.047	1.204	1.354	1.497
-0.6	2.935E-1	4.511E-1	6.081E-1	7.629E-1	9.139E-1	1.060	1.199	1.331	1.455
-0.5	3.679E-1	5.159E-1	6.615E-1	8.031E-1	9.394E-1	1.069	1.192	1.307	1.412
-0.4	4.393E-1	5.770E-1	7.106E-1	8.389E-1	9.608E-1	1.075	1.182	1.280	1.370
-0.3	5.069E-1	6.337E-1	7.551E-1	8.700E-1	9.778E-1	1.078	1.169	1.252	1.326
-0.2	5.701E-1	6.855E-1	7.944E-1	8.961E-1	9.901E-1	1.076	1.153	1.221	1.281

ตารางที่ 37 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $-0.9 \leq a \leq -0.1$ ,  $-0.1 \leq x \leq 5$

x	U(-0.9,x)	U(-0.8,x)	U(-0.7,x)	U(-0.6,x)	U(-0.5,x)	U(-0.4,x)	U(-0.3,x)	U(-0.2,x)	U(-0.1,x)
-0.1	6.281E-1	7.319E-1	8.283E-1	9.170E-1	9.975E-1	1.070	1.133	1.189	1.236
0.0	6.806E-1	7.724E-1	8.564E-1	9.323E-1	1.000	1.059	1.111	1.154	1.189
0.1	7.269E-1	8.068E-1	8.785E-1	9.421E-1	9.975E-1	1.045	1.084	1.116	1.141
0.2	7.667E-1	8.347E-1	8.945E-1	9.463E-1	9.901E-1	1.026	1.055	1.076	1.091
0.3	7.997E-1	8.561E-1	9.044E-1	9.448E-1	9.778E-1	1.004	1.022	1.035	1.041
0.4	8.257E-1	8.708E-1	9.081E-1	9.380E-1	9.608E-1	9.770E-1	9.870E-1	9.912E-1	9.902E-1
0.5	8.446E-1	8.789E-1	9.058E-1	9.258E-1	9.394E-1	9.470E-1	9.491E-1	9.461E-1	9.386E-1
0.6	8.565E-1	8.805E-1	8.978E-1	9.087E-1	9.139E-1	9.138E-1	9.089E-1	8.997E-1	8.866E-1
0.7	8.614E-1	8.759E-1	8.843E-1	8.870E-1	8.847E-1	8.778E-1	8.668E-1	8.523E-1	8.346E-1
0.8	8.596E-1	8.653E-1	8.656E-1	8.611E-1	8.521E-1	8.394E-1	8.232E-1	8.042E-1	7.827E-1
0.9	8.514E-1	8.492E-1	8.424E-1	8.313E-1	8.167E-1	7.989E-1	7.785E-1	7.558E-1	7.314E-1
1.0	8.374E-1	8.281E-1	8.149E-1	7.983E-1	7.788E-1	7.569E-1	7.330E-1	7.075E-1	6.807E-1
1.1	8.179E-1	8.024E-1	7.837E-1	7.625E-1	7.390E-1	7.137E-1	6.871E-1	6.595E-1	6.311E-1
1.2	7.935E-1	7.727E-1	7.495E-1	7.244E-1	6.977E-1	6.699E-1	6.412E-1	6.121E-1	5.828E-1
1.3	7.648E-1	7.396E-1	7.127E-1	6.845E-1	6.554E-1	6.257E-1	5.958E-1	5.658E-1	5.360E-1
1.4	7.325E-1	7.037E-1	6.739E-1	6.435E-1	6.126E-1	5.817E-1	5.510E-1	5.207E-1	4.909E-1
1.5	6.972E-1	6.657E-1	6.337E-1	6.017E-1	5.698E-1	5.383E-1	5.073E-1	4.771E-1	4.477E-1
1.6	6.595E-1	6.260E-1	5.927E-1	5.597E-1	5.273E-1	4.957E-1	4.649E-1	4.352E-1	4.066E-1
1.7	6.201E-1	5.854E-1	5.512E-1	5.179E-1	4.855E-1	4.542E-1	4.241E-1	3.952E-1	3.677E-1
1.8	5.796E-1	5.442E-1	5.099E-1	4.768E-1	4.449E-1	4.143E-1	3.851E-1	3.573E-1	3.310E-1
1.9	5.386E-1	5.032E-1	4.692E-1	4.366E-1	4.056E-1	3.760E-1	3.481E-1	3.216E-1	2.967E-1
2.0	4.975E-1	4.626E-1	4.294E-1	3.978E-1	3.679E-1	3.397E-1	3.131E-1	2.882E-1	2.648E-1
2.1	4.570E-1	4.230E-1	3.909E-1	3.605E-1	3.320E-1	3.053E-1	2.803E-1	2.570E-1	2.353E-1
2.2	4.174E-1	3.847E-1	3.539E-1	3.251E-1	2.982E-1	2.731E-1	2.498E-1	2.282E-1	2.081E-1
2.3	3.791E-1	3.479E-1	3.188E-1	2.917E-1	2.665E-1	2.431E-1	2.216E-1	2.016E-1	1.833E-1
2.4	3.424E-1	3.129E-1	2.856E-1	2.603E-1	2.369E-1	2.154E-1	1.956E-1	1.773E-1	1.606E-1
2.5	3.075E-1	2.800E-1	2.545E-1	2.311E-1	2.096E-1	1.899E-1	1.718E-1	1.553E-1	1.402E-1
2.6	2.747E-1	2.491E-1	2.257E-1	2.042E-1	1.845E-1	1.666E-1	1.502E-1	1.353E-1	1.217E-1
2.7	2.440E-1	2.205E-1	1.990E-1	1.795E-1	1.616E-1	1.454E-1	1.307E-1	1.173E-1	1.053E-1
2.8	2.156E-1	1.941E-1	1.746E-1	1.569E-1	1.409E-1	1.263E-1	1.132E-1	1.013E-1	9.058E-2
2.9	1.894E-1	1.700E-1	1.524E-1	1.365E-1	1.222E-1	1.092E-1	9.753E-2	8.703E-2	7.759E-2
3.0	1.656E-1	1.481E-1	1.323E-1	1.182E-1	1.054E-1	9.393E-2	8.364E-2	7.442E-2	6.615E-2
3.1	1.439E-1	1.283E-1	1.143E-1	1.018E-1	9.049E-2	8.041E-2	7.139E-2	6.333E-2	5.614E-2
3.2	1.244E-1	1.106E-1	9.824E-2	8.718E-2	7.731E-2	6.849E-2	6.064E-2	5.364E-2	4.742E-2
3.3	1.070E-1	9.484E-2	8.399E-2	7.432E-2	6.571E-2	5.806E-2	5.125E-2	4.522E-2	3.986E-2
3.4	9.155E-2	8.090E-2	7.144E-2	6.303E-2	5.558E-2	4.897E-2	4.311E-2	3.793E-2	3.335E-2
3.5	7.790E-2	6.865E-2	6.045E-2	5.319E-2	4.677E-2	4.110E-2	3.609E-2	3.167E-2	2.777E-2
3.6	6.594E-2	5.795E-2	5.089E-2	4.466E-2	3.916E-2	3.432E-2	3.006E-2	2.631E-2	2.302E-2
3.7	5.552E-2	4.866E-2	4.262E-2	3.730E-2	3.263E-2	2.853E-2	2.492E-2	2.176E-2	1.899E-2
3.8	4.650E-2	4.065E-2	3.551E-2	3.100E-2	2.705E-2	2.359E-2	2.056E-2	1.791E-2	1.559E-2
3.9	3.875E-2	3.378E-2	2.944E-2	2.564E-2	2.232E-2	1.941E-2	1.688E-2	1.466E-2	1.274E-2
4.0	3.212E-2	2.793E-2	2.428E-2	2.109E-2	1.832E-2	1.590E-2	1.379E-2	1.195E-2	1.036E-2
4.1	2.648E-2	2.298E-2	1.992E-2	1.727E-2	1.496E-2	1.295E-2	1.121E-2	9.693E-3	8.379E-3
4.2	2.172E-2	1.880E-2	1.627E-2	1.406E-2	1.216E-2	1.050E-2	9.066E-3	7.823E-3	6.748E-3
4.3	1.772E-2	1.531E-2	1.321E-2	1.140E-2	9.828E-3	8.471E-3	7.298E-3	6.284E-3	5.409E-3
4.4	1.439E-2	1.240E-2	1.068E-2	9.190E-3	7.907E-3	6.800E-3	5.846E-3	5.023E-3	4.314E-3
4.5	1.162E-2	9.988E-3	8.583E-3	7.373E-3	6.330E-3	5.432E-3	4.660E-3	3.995E-3	3.424E-3
4.6	9.333E-3	8.007E-3	6.866E-3	5.885E-3	5.042E-3	4.318E-3	3.696E-3	3.163E-3	2.705E-3
4.7	7.459E-3	6.386E-3	5.464E-3	4.674E-3	3.996E-3	3.415E-3	2.917E-3	2.491E-3	2.127E-3
4.8	5.931E-3	5.067E-3	4.327E-3	3.693E-3	3.151E-3	2.688E-3	2.291E-3	1.953E-3	1.664E-3
4.9	4.691E-3	4.000E-3	3.409E-3	2.904E-3	2.473E-3	2.105E-3	1.791E-3	1.523E-3	1.295E-3
5.0	3.692E-3	3.141E-3	2.672E-3	2.271E-3	1.931E-3	1.640E-3	1.393E-3	1.183E-3	1.004E-3

ตารางที่ 38 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $0 \leq a \leq 0.8, -0.2 \leq x \leq -5$

x	U(0,x)	U(0.1,x)	U(0.2,x)	U(0.3,x)	U(0.4,x)	U(0.5,x)	U(0.6,x)	U(0.7,x)	U(0.8,x)
-5.0	3.331E+2	4.637E+2	6.225E+2	8.126E+2	1.037E+3	1.298E+3	1.600E+3	1.945E+3	2.334E+3
-4.9	2.629E+2	3.651E+2	4.892E+2	6.371E+2	8.113E+2	1.014E+3	1.247E+3	1.512E+3	1.811E+3
-4.8	2.086E+2	2.891E+2	3.864E+2	5.021E+2	6.380E+2	7.955E+2	9.761E+2	1.181E+3	1.412E+3
-4.7	1.664E+2	2.300E+2	3.067E+2	3.977E+2	5.042E+2	6.273E+2	7.681E+2	9.275E+2	1.106E+3
-4.6	1.334E+2	1.840E+2	2.448E+2	3.167E+2	4.005E+2	4.972E+2	6.073E+2	7.318E+2	8.710E+2
-4.5	1.076E+2	1.480E+2	1.964E+2	2.534E+2	3.198E+2	3.960E+2	4.827E+2	5.802E+2	6.890E+2
-4.4	8.717E+1	1.196E+2	1.584E+2	2.039E+2	2.566E+2	3.170E+2	3.855E+2	4.623E+2	5.477E+2
-4.3	7.103E+1	9.722E+1	1.284E+2	1.648E+2	2.070E+2	2.550E+2	3.094E+2	3.701E+2	4.375E+2
-4.2	5.819E+1	7.943E+1	1.046E+2	1.340E+2	1.678E+2	2.062E+2	2.495E+2	2.978E+2	3.511E+2
-4.1	4.793E+1	6.524E+1	8.568E+1	1.094E+2	1.367E+2	1.676E+2	2.022E+2	2.408E+2	2.832E+2
-4.0	3.969E+1	5.387E+1	7.055E+1	8.985E+1	1.119E+2	1.369E+2	1.647E+2	1.956E+2	2.295E+2
-3.9	3.305E+1	4.473E+1	5.840E+1	7.416E+1	9.212E+1	1.123E+2	1.348E+2	1.597E+2	1.868E+2
-3.8	2.768E+1	3.733E+1	4.859E+1	6.153E+1	7.620E+1	9.265E+1	1.109E+2	1.310E+2	1.529E+2
-3.7	2.331E+1	3.133E+1	4.065E+1	5.131E+1	6.336E+1	7.681E+1	9.168E+1	1.080E+2	1.257E+2
-3.6	1.973E+1	2.644E+1	3.419E+1	4.302E+1	5.295E+1	6.399E+1	7.615E+1	8.942E+1	1.038E+2
-3.5	1.681E+1	2.243E+1	2.891E+1	3.625E+1	4.447E+1	5.358E+1	6.357E+1	7.442E+1	8.611E+1
-3.4	1.439E+1	1.914E+1	2.457E+1	3.071E+1	3.755E+1	4.509E+1	5.332E+1	6.223E+1	7.179E+1
-3.3	1.240E+1	1.642E+1	2.100E+1	2.615E+1	3.186E+1	3.813E+1	4.494E+1	5.228E+1	6.012E+1
-3.2	1.074E+1	1.417E+1	1.805E+1	2.238E+1	2.717E+1	3.240E+1	3.807E+1	4.413E+1	5.059E+1
-3.1	9.365	1.229E+1	1.559E+1	1.926E+1	2.329E+1	2.767E+1	3.239E+1	3.743E+1	4.277E+1
-3.0	8.211	1.072E+1	1.354E+1	1.666E+1	2.006E+1	2.375E+1	2.770E+1	3.189E+1	3.632E+1
-2.9	7.243	9.411	1.183E+1	1.448E+1	1.737E+1	2.048E+1	2.380E+1	2.730E+1	3.097E+1
-2.8	6.427	8.305	1.038E+1	1.266E+1	1.512E+1	1.775E+1	2.054E+1	2.348E+1	2.654E+1
-2.7	5.738	7.371	9.168	1.112E+1	1.322E+1	1.546E+1	1.781E+1	2.028E+1	2.283E+1
-2.6	5.154	6.579	8.137	9.820	1.162E+1	1.352E+1	1.552E+1	1.759E+1	1.973E+1
-2.5	4.658	5.905	7.260	8.715	1.026E+1	1.188E+1	1.358E+1	1.533E+1	1.713E+1
-2.4	4.234	5.330	6.512	7.772	9.103	1.049E+1	1.193E+1	1.341E+1	1.492E+1
-2.3	3.871	4.837	5.871	6.966	8.114	9.306	1.053E+1	1.179E+1	1.306E+1
-2.2	3.560	4.413	5.319	6.273	7.265	8.289	9.337	1.040E+1	1.147E+1
-2.1	3.292	4.047	4.843	5.674	6.534	7.414	8.309	9.211	1.011E+1
-2.0	3.060	3.730	4.430	5.156	5.901	6.659	7.423	8.189	8.949
-1.9	2.859	3.453	4.070	4.705	5.351	6.003	6.657	7.306	7.946
-1.8	2.684	3.212	3.780	4.310	4.871	5.432	5.990	6.541	7.079
-1.7	2.531	3.000	3.479	3.963	4.449	4.933	5.409	5.875	6.327
-1.6	2.395	2.812	3.234	3.657	4.078	4.493	4.899	5.292	5.671
-1.5	2.276	2.646	3.017	3.386	3.750	4.105	4.450	4.781	5.096
-1.4	2.169	2.497	2.823	3.144	3.458	3.761	4.053	4.330	4.591
-1.3	2.073	2.362	2.648	2.926	3.196	3.454	3.700	3.931	4.146
-1.2	1.985	2.241	2.490	2.730	2.961	3.179	3.385	3.576	3.752
-1.1	1.905	2.129	2.345	2.552	2.748	2.932	3.103	3.259	3.401
-1.0	1.830	2.026	2.213	2.389	2.555	2.708	2.848	2.975	3.088
-0.9	1.760	1.930	2.090	2.240	2.378	2.504	2.618	2.719	2.807
-0.8	1.694	1.840	1.976	2.102	2.216	2.318	2.409	2.488	2.554
-0.7	1.631	1.755	1.869	1.973	2.066	2.148	2.218	2.278	2.326
-0.6	1.569	1.674	1.769	1.853	1.927	1.990	2.044	2.087	2.120
-0.5	1.509	1.596	1.673	1.740	1.797	1.845	1.883	1.912	1.932
-0.4	1.450	1.520	1.581	1.633	1.676	1.710	1.735	1.752	1.761
-0.3	1.391	1.447	1.494	1.532	1.562	1.584	1.598	1.605	1.605
-0.2	1.333	1.375	1.410	1.436	1.455	1.467	1.471	1.470	1.462

ตารางที่ 39 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $0 \leq a \leq 0.8, -0.1 \leq x \leq 5$

X	U(0,x)	U(0.1,x)	U(0.2,x)	U(0.3,x)	U(0.4,x)	U(0.5,x)	U(0.6,x)	U(0.7,x)	U(0.8,x)
-0.1	1.274	1.305	1.329	1.345	1.354	1.356	1.353	1.345	1.331
0.0	1.216	1.237	1.250	1.257	1.258	1.253	1.244	1.229	1.211
0.1	1.158	1.169	1.174	1.173	1.167	1.156	1.141	1.122	1.100
0.2	1.100	1.103	1.100	1.093	1.081	1.065	1.046	1.023	9.981E-1
0.3	1.042	1.038	1.029	1.016	9.995E-1	9.796E-1	9.568E-1	9.316E-1	9.044E-1
0.4	9.843E-1	9.741E-1	9.600E-1	9.426E-1	9.221E-1	8.990E-1	8.737E-1	8.467E-1	8.181E-1
0.5	9.270E-1	9.117E-1	8.933E-1	8.722E-1	8.487E-1	8.233E-1	7.962E-1	7.680E-1	7.387E-1
0.6	8.702E-1	8.508E-1	8.290E-1	8.050E-1	7.793E-1	7.522E-1	7.240E-1	6.951E-1	6.657E-1
0.7	8.142E-1	7.915E-1	7.670E-1	7.409E-1	7.137E-1	6.856E-1	6.568E-1	6.278E-1	5.986E-1
0.8	7.592E-1	7.340E-1	7.075E-1	6.800E-1	6.518E-1	6.232E-1	5.944E-1	5.656E-1	5.370E-1
0.9	7.054E-1	6.784E-1	6.506E-1	6.222E-1	5.936E-1	5.649E-1	5.364E-1	5.083E-1	4.806E-1
1.0	6.531E-1	6.248E-1	5.962E-1	5.675E-1	5.389E-1	5.106E-1	4.828E-1	4.555E-1	4.290E-1
1.1	6.024E-1	5.734E-1	5.446E-1	5.160E-1	4.878E-1	4.602E-1	4.333E-1	4.071E-1	3.819E-1
1.2	5.535E-1	5.244E-1	4.957E-1	4.675E-1	4.401E-1	4.134E-1	3.877E-1	3.628E-1	3.390E-1
1.3	5.066E-1	4.777E-1	4.495E-1	4.222E-1	3.957E-1	3.702E-1	3.458E-1	3.224E-1	3.000E-1
1.4	4.618E-1	4.335E-1	4.062E-1	3.799E-1	3.546E-1	3.304E-1	3.074E-1	2.855E-1	2.648E-1
1.5	4.193E-1	3.919E-1	3.657E-1	3.406E-1	3.166E-1	2.939E-1	2.724E-1	2.520E-1	2.329E-1
1.6	3.791E-1	3.529E-1	3.279E-1	3.042E-1	2.817E-1	2.605E-1	2.405E-1	2.218E-1	2.042E-1
1.7	3.414E-1	3.165E-1	2.929E-1	2.707E-1	2.497E-1	2.301E-1	2.117E-1	1.945E-1	1.784E-1
1.8	3.061E-1	2.827E-1	2.606E-1	2.399E-1	2.205E-1	2.025E-1	1.856E-1	1.699E-1	1.554E-1
1.9	2.733E-1	2.514E-1	2.309E-1	2.118E-1	1.940E-1	1.775E-1	1.622E-1	1.480E-1	1.349E-1
2.0	2.430E-1	2.227E-1	2.038E-1	1.863E-1	1.700E-1	1.550E-1	1.412E-1	1.284E-1	1.166E-1
2.1	2.151E-1	1.964E-1	1.791E-1	1.632E-1	1.484E-1	1.349E-1	1.224E-1	1.110E-1	1.005E-1
2.2	1.896E-1	1.725E-1	1.568E-1	1.423E-1	1.290E-1	1.169E-1	1.057E-1	9.556E-2	8.628E-2
2.3	1.664E-1	1.509E-1	1.367E-1	1.236E-1	1.117E-1	1.009E-1	9.099E-2	8.198E-2	7.379E-2
2.4	1.453E-1	1.314E-1	1.186E-1	1.070E-1	9.636E-2	8.673E-2	7.798E-2	7.006E-2	6.287E-2
2.5	1.264E-1	1.139E-1	1.025E-1	9.213E-2	8.275E-2	7.426E-2	6.657E-2	5.963E-2	5.336E-2
2.6	1.094E-1	9.828E-2	8.817E-2	7.903E-2	7.077E-2	6.332E-2	5.660E-2	5.056E-2	4.512E-2
2.7	9.432E-2	8.445E-2	7.553E-2	6.750E-2	6.027E-2	5.377E-2	4.793E-2	4.269E-2	3.799E-2
2.8	8.093E-2	7.224E-2	6.442E-2	5.741E-2	5.111E-2	4.547E-2	4.042E-2	3.590E-2	3.186E-2
2.9	6.911E-2	6.151E-2	5.470E-2	4.861E-2	4.316E-2	3.829E-2	3.394E-2	3.007E-2	2.662E-2
3.0	5.876E-2	5.215E-2	4.624E-2	4.098E-2	3.628E-2	3.210E-2	2.838E-2	2.508E-2	2.214E-2
3.1	4.972E-2	4.401E-2	3.892E-2	3.439E-2	3.037E-2	2.680E-2	2.364E-2	2.083E-2	1.834E-2
3.2	4.188E-2	3.697E-2	3.261E-2	2.874E-2	2.531E-2	2.228E-2	1.960E-2	1.723E-2	1.513E-2
3.3	3.511E-2	3.091E-2	2.719E-2	2.391E-2	2.100E-2	1.844E-2	1.618E-2	1.419E-2	1.243E-2
3.4	2.930E-2	2.573E-2	2.258E-2	1.980E-2	1.735E-2	1.520E-2	1.330E-2	1.164E-2	1.017E-2
3.5	2.434E-2	2.132E-2	1.866E-2	1.632E-2	1.427E-2	1.247E-2	1.089E-2	9.501E-3	8.287E-3
3.6	2.012E-2	1.758E-2	1.535E-2	1.340E-2	1.168E-2	1.018E-2	8.872E-3	7.724E-3	6.722E-3
3.7	1.656E-2	1.443E-2	1.257E-2	1.094E-2	9.522E-3	8.281E-3	7.198E-3	6.253E-3	5.429E-3
3.8	1.356E-2	1.179E-2	1.025E-2	8.900E-3	7.726E-3	6.704E-3	5.814E-3	5.039E-3	4.366E-3
3.9	1.105E-2	9.589E-3	8.314E-3	7.205E-3	6.241E-3	5.403E-3	4.675E-3	4.043E-3	3.495E-3
4.0	8.967E-3	7.761E-3	6.714E-3	5.806E-3	5.018E-3	4.334E-3	3.743E-3	3.230E-3	2.786E-3
4.1	7.240E-3	6.253E-3	5.397E-3	4.657E-3	4.016E-3	3.462E-3	2.983E-3	2.569E-3	2.211E-3
4.2	5.818E-3	5.014E-3	4.318E-3	3.718E-3	3.200E-3	2.752E-3	2.366E-3	2.034E-3	1.747E-3
4.3	4.653E-3	4.001E-3	3.439E-3	2.955E-3	2.537E-3	2.178E-3	1.869E-3	1.603E-3	1.374E-3
4.4	3.703E-3	3.178E-3	2.726E-3	2.337E-3	2.003E-3	1.716E-3	1.469E-3	1.258E-3	1.076E-3
4.5	2.934E-3	2.512E-3	2.150E-3	1.840E-3	1.574E-3	1.346E-3	1.150E-3	9.824E-4	8.389E-4
4.6	2.313E-3	1.977E-3	1.689E-3	1.442E-3	1.231E-3	1.050E-3	8.958E-4	7.638E-4	6.510E-4
4.7	1.815E-3	1.548E-3	1.320E-3	1.125E-3	9.582E-4	8.160E-4	6.947E-4	5.912E-4	5.030E-4
4.8	1.417E-3	1.206E-3	1.026E-3	8.731E-4	7.424E-4	6.311E-4	5.363E-4	4.555E-4	3.868E-4
4.9	1.101E-3	9.354E-4	7.945E-4	6.746E-4	5.726E-4	4.858E-4	4.120E-4	3.494E-4	2.961E-4
5.0	8.514E-4	7.220E-4	6.121E-4	5.188E-4	4.395E-4	3.722E-4	3.151E-4	2.667E-4	2.257E-4

ตารางที่ 40 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $0.9 \leq a \leq 5$ ,  $-0.2 \leq x \leq -5$

x	U(0.9,x)	U(1.0,x)	U(1.5,x)	U(2,x)	U(2.5,x)	U(3.0,x)	U(3.5,x)	U(4.0,x)	U(4.5,x)	U(5.0,x)
-5.0	2.772E+3	3.259E+3	8.377E+3	1.109E+4	1.688E+4	2.347E+4	3.030E+4	3.670E+4	4.209E+4	4.600E+4
-4.9	2.146E+3	2.518E+3	4.967E+3	8.402E+3	1.268E+4	1.748E+4	2.236E+4	2.687E+4	3.056E+4	3.314E+4
-4.8	1.670E+3	1.955E+3	3.818E+3	6.396E+3	9.562E+3	1.306E+4	1.657E+4	1.974E+4	2.228E+4	2.396E+4
-4.7	1.305E+3	1.525E+3	2.948E+3	4.891E+3	7.242E+3	9.805E+3	1.233E+4	1.456E+4	1.630E+4	1.739E+4
-4.6	1.026E+3	1.196E+3	2.287E+3	3.756E+3	5.509E+3	7.389E+3	9.209E+3	1.078E+4	1.197E+4	1.267E+4
-4.5	8.095E+2	9.417E+2	1.782E+3	2.897E+3	4.208E+3	5.591E+3	6.905E+3	8.016E+3	8.821E+3	9.259E+3
-4.4	6.420E+2	7.452E+2	1.395E+3	2.244E+3	3.227E+3	4.248E+3	5.198E+3	5.981E+3	6.525E+3	6.792E+3
-4.3	5.116E+2	5.925E+2	1.097E+3	1.746E+3	2.485E+3	3.240E+3	3.928E+3	4.479E+3	4.844E+3	5.000E+3
-4.2	4.096E+2	4.733E+2	8.661E+2	1.364E+3	1.922E+3	2.481E+3	2.979E+3	3.367E+3	3.609E+3	3.693E+3
-4.1	3.295E+2	3.798E+2	6.871E+2	1.070E+3	1.492E+3	1.907E+3	2.268E+3	2.540E+3	2.698E+3	2.738E+3
-4.0	2.664E+2	3.063E+2	5.474E+2	8.432E+2	1.163E+3	1.472E+3	1.734E+3	1.923E+3	2.024E+3	2.036E+3
-3.9	2.163E+2	2.481E+2	4.381E+2	6.671E+2	9.104E+2	1.140E+3	1.330E+3	1.461E+3	1.524E+3	1.519E+3
-3.8	1.765E+2	2.019E+2	3.521E+2	5.299E+2	7.153E+2	8.863E+2	1.023E+3	1.114E+3	1.151E+3	1.137E+3
-3.7	1.447E+2	1.651E+2	2.842E+2	4.227E+2	5.642E+2	6.916E+2	7.906E+2	8.519E+2	8.724E+2	8.542E+2
-3.6	1.192E+2	1.356E+2	2.304E+2	3.385E+2	4.467E+2	5.417E+2	6.129E+2	6.539E+2	6.633E+2	6.435E+2
-3.5	9.860E+1	1.119E+2	1.876E+2	2.722E+2	3.551E+2	4.258E+2	4.768E+2	5.036E+2	5.059E+2	4.863E+2
-3.4	8.196E+1	9.271E+1	1.534E+2	2.197E+2	2.832E+2	3.359E+2	3.721E+2	3.891E+2	3.871E+2	3.687E+2
-3.3	6.844E+1	7.718E+1	1.259E+2	1.781E+2	2.268E+2	2.659E+2	2.914E+2	3.016E+2	2.971E+2	2.803E+2
-3.2	5.741E+1	6.454E+1	1.038E+2	1.449E+2	1.822E+2	2.112E+2	2.290E+2	2.345E+2	2.287E+2	2.137E+2
-3.1	4.837E+1	5.421E+1	8.587E+1	1.183E+2	1.469E+2	1.684E+2	1.805E+2	1.829E+2	1.766E+2	1.634E+2
-3.0	4.094E+1	4.573E+1	7.135E+1	9.694E+1	1.189E+2	1.346E+2	1.427E+2	1.431E+2	1.368E+2	1.253E+2
-2.9	3.480E+1	3.874E+1	5.952E+1	7.973E+1	9.655E+1	1.080E+2	1.132E+2	1.123E+2	1.062E+2	9.634E+1
-2.8	2.971E+1	3.296E+1	4.984E+1	6.581E+1	7.865E+1	8.690E+1	9.002E+1	8.832E+1	8.268E+1	7.427E+1
-2.7	2.547E+1	2.816E+1	4.189E+1	5.452E+1	6.428E+1	7.014E+1	7.182E+1	6.969E+1	6.455E+1	5.740E+1
-2.6	2.193E+1	2.416E+1	3.534E+1	4.531E+1	5.270E+1	5.678E+1	5.746E+1	5.513E+1	5.052E+1	4.447E+1
-2.5	1.896E+1	2.081E+1	2.992E+1	3.778E+1	4.334E+1	4.610E+1	4.609E+1	4.372E+1	3.964E+1	3.454E+1
-2.4	1.645E+1	1.799E+1	2.542E+1	3.161E+1	3.575E+1	3.754E+1	3.707E+1	3.477E+1	3.118E+1	2.689E+1
-2.3	1.434E+1	1.561E+1	2.167E+1	2.652E+1	2.957E+1	3.065E+1	2.990E+1	2.772E+1	2.458E+1	2.098E+1
-2.2	1.254E+1	1.360E+1	1.853E+1	2.232E+1	2.453E+1	2.508E+1	2.417E+1	2.214E+1	1.943E+1	1.640E+1
-2.1	1.101E+1	1.189E+1	1.590E+1	1.884E+1	2.040E+1	2.058E+1	1.958E+1	1.773E+1	1.538E+1	1.285E+1
-2.0	9.698	1.043E+1	1.369E+1	1.595E+1	1.701E+1	1.693E+1	1.590E+1	1.423E+1	1.221E+1	1.009E+1
-1.9	8.572	9.180	1.181E+1	1.353E+1	1.422E+1	1.396E+1	1.294E+1	1.144E+1	9.705	7.933
-1.8	7.601	8.104	1.022E+1	1.151E+1	1.192E+1	1.153E+1	1.056E+1	9.221	7.730	6.251
-1.7	6.761	7.176	8.871	9.820	1.001E+1	9.548	8.627	7.443	6.168	4.933
-1.6	6.031	6.371	7.717	8.393	8.420	7.920	7.063	6.019	4.930	3.900
-1.5	5.393	5.671	6.728	7.189	7.099	6.582	5.792	4.875	3.947	3.088
-1.4	4.835	5.061	5.878	6.169	5.995	5.479	4.757	3.954	3.164	2.448
-1.3	4.345	4.525	5.146	5.304	5.072	4.568	3.913	3.212	2.540	1.943
-1.2	3.912	4.054	4.513	4.567	4.298	3.814	3.223	2.612	2.041	1.544
-1.1	3.528	3.639	3.964	3.938	3.646	3.188	2.658	2.127	1.643	1.229
-1.0	3.186	3.271	3.487	3.401	3.097	2.669	2.195	1.734	1.323	9.784E-1
-0.9	2.882	2.944	3.071	2.940	2.634	2.236	1.814	1.415	1.067	7.798E-1
-0.8	2.609	2.652	2.707	2.544	2.242	1.875	1.500	1.155	8.605E-1	6.220E-1
-0.7	2.364	2.391	2.388	2.203	1.910	1.573	1.242	9.441E-1	6.947E-1	4.965E-1
-0.6	2.143	2.157	2.108	1.909	1.628	1.321	1.028	7.719E-1	5.612E-1	3.965E-1
-0.5	1.944	1.947	1.862	1.655	1.388	1.110	8.520E-1	6.314E-1	4.535E-1	3.168E-1
-0.4	1.763	1.757	1.645	1.435	1.184	9.326E-1	7.061E-1	5.166E-1	3.666E-1	2.532E-1
-0.3	1.598	1.586	1.453	1.244	1.010	7.838E-1	5.853E-1	4.227E-1	2.964E-1	2.024E-1
-0.2	1.449	1.431	1.283	1.079	8.616E-1	6.587E-1	4.852E-1	3.460E-1	2.397E-1	1.618E-1



ตารางที่ 41 ค่า Whittaker Parabolic Cylinder Function ตั้งแต่ค่า  $0.9 \leq a \leq 5$ ,  $-0.1 \leq x \leq 5$

x	U(0.9,x)	U(1.0,x)	U(1.5,x)	U(2,x)	U(2.5,x)	U(3.0,x)	U(3.5,x)	U(4.0,x)	U(4.5,x)	U(5.0,x)
-0.1	1.313	1.290	1.133	9.356E-1	7.349E-1	5.536E-1	4.022E-1	2.831E-1	1.938E-1	1.293E-1
0.0	1.188	1.163	1.000	8.109E-1	6.267E-1	4.651E-1	3.333E-1	2.317E-1	1.567E-1	1.034E-1
0.1	1.075	1.047	8.819E-1	7.023E-1	5.341E-1	3.906E-1	2.762E-1	1.895E-1	1.266E-1	8.259E-2
0.2	9.706E-1	9.412E-1	7.770E-1	6.079E-1	4.549E-1	3.279E-1	2.287E-1	1.549E-1	1.023E-1	6.597E-2
0.3	8.755E-1	8.452E-1	6.839E-1	5.257E-1	3.872E-1	2.750E-1	1.892E-1	1.266E-1	8.260E-2	5.267E-2
0.4	7.884E-1	7.579E-1	6.012E-1	4.541E-1	3.293E-1	2.305E-1	1.565E-1	1.034E-1	6.666E-2	4.203E-2
0.5	7.088E-1	6.785E-1	5.278E-1	3.918E-1	2.797E-1	1.930E-1	1.293E-1	8.437E-2	5.376E-2	3.352E-2
0.6	6.360E-1	6.062E-1	4.626E-1	3.376E-1	2.373E-1	1.615E-1	1.067E-1	6.879E-2	4.332E-2	2.671E-2
0.7	5.695E-1	5.406E-1	4.048E-1	2.905E-1	2.011E-1	1.349E-1	8.802E-2	5.603E-2	3.487E-2	2.126E-2
0.8	5.088E-1	4.811E-1	3.536E-1	2.496E-1	1.702E-1	1.126E-1	7.249E-2	4.558E-2	2.804E-2	1.691E-2
0.9	4.535E-1	4.271E-1	3.083E-1	2.140E-1	1.438E-1	9.379E-2	5.962E-2	3.704E-2	2.252E-2	1.343E-2
1.0	4.032E-1	3.783E-1	2.682E-1	1.832E-1	1.212E-1	7.802E-2	4.897E-2	3.005E-2	1.807E-2	1.066E-2
1.1	3.575E-1	3.342E-1	2.328E-1	1.565E-1	1.021E-1	6.480E-2	4.016E-2	2.435E-2	1.448E-2	8.448E-3
1.2	3.162E-1	2.944E-1	2.016E-1	1.334E-1	8.577E-2	5.373E-2	3.288E-2	1.970E-2	1.158E-2	6.686E-3
1.3	2.788E-1	2.587E-1	1.741E-1	1.135E-1	7.193E-2	4.446E-2	2.687E-2	1.591E-2	9.249E-3	5.283E-3
1.4	2.451E-1	2.267E-1	1.500E-1	9.632E-2	6.019E-2	3.672E-2	2.192E-2	1.283E-2	7.375E-3	4.168E-3
1.5	2.149E-1	1.980E-1	1.289E-1	8.154E-2	5.026E-2	3.027E-2	1.785E-2	1.033E-2	5.871E-3	3.283E-3
1.6	1.877E-1	1.724E-1	1.105E-1	6.886E-2	4.186E-2	2.489E-2	1.450E-2	8.295E-3	4.665E-3	2.582E-3
1.7	1.635E-1	1.497E-1	9.441E-2	5.799E-2	3.479E-2	2.042E-2	1.176E-2	6.650E-3	3.699E-3	2.026E-3
1.8	1.419E-1	1.295E-1	8.044E-2	4.871E-2	2.883E-2	1.672E-2	9.513E-3	5.320E-3	2.928E-3	1.587E-3
1.9	1.228E-1	1.117E-1	6.832E-2	4.080E-2	2.384E-2	1.365E-2	7.678E-3	4.246E-3	2.312E-3	1.241E-3
2.0	1.059E-1	9.595E-2	5.785E-2	3.408E-2	1.965E-2	1.112E-2	6.182E-3	3.382E-3	1.822E-3	9.681E-4
2.1	9.092E-2	8.217E-2	4.883E-2	2.838E-2	1.616E-2	9.034E-3	4.966E-3	2.687E-3	1.433E-3	7.536E-4
2.2	7.782E-2	7.012E-2	4.108E-2	2.356E-2	1.325E-2	7.319E-3	3.978E-3	2.130E-3	1.124E-3	5.854E-4
2.3	6.636E-2	5.962E-2	3.444E-2	1.950E-2	1.083E-2	5.914E-3	3.179E-3	1.684E-3	8.796E-4	4.536E-4
2.4	5.638E-2	5.051E-2	2.878E-2	1.608E-2	8.826E-3	4.765E-3	2.533E-3	1.328E-3	6.867E-4	3.507E-4
2.5	4.771E-2	4.263E-2	2.397E-2	1.322E-2	7.171E-3	3.828E-3	2.013E-3	1.044E-3	5.347E-4	2.705E-4
2.6	4.023E-2	3.584E-2	1.989E-2	1.084E-2	5.808E-3	3.066E-3	1.595E-3	8.190E-4	4.152E-4	2.081E-4
2.7	3.378E-2	3.002E-2	1.644E-2	8.851E-3	4.689E-3	2.448E-3	1.260E-3	6.405E-4	3.216E-4	1.596E-4
2.8	2.826E-2	2.504E-2	1.354E-2	7.204E-3	3.773E-3	1.948E-3	9.928E-4	4.995E-4	2.484E-4	1.222E-4
2.9	2.354E-2	2.081E-2	1.112E-2	5.843E-3	3.026E-3	1.546E-3	7.797E-4	3.885E-4	1.913E-4	9.323E-5
3.0	1.954E-2	1.722E-2	9.089E-3	4.722E-3	2.419E-3	1.223E-3	6.104E-4	3.012E-4	1.470E-4	7.095E-5
3.1	1.614E-2	1.420E-2	4.703E-3	3.803E-3	1.927E-3	9.639E-4	4.764E-4	2.328E-4	1.125E-4	5.384E-5
3.2	1.329E-2	1.166E-2	6.007E-3	3.051E-3	1.530E-3	7.574E-4	3.706E-4	1.794E-4	8.591E-5	4.074E-5
3.3	1.089E-2	9.532E-3	4.855E-3	2.439E-3	1.210E-3	5.930E-4	2.874E-4	1.378E-4	6.539E-5	3.074E-5
3.4	8.888E-3	7.762E-3	3.909E-3	1.943E-3	9.536E-4	4.627E-4	2.221E-4	1.055E-4	4.962E-5	2.312E-5
3.5	7.224E-3	6.294E-3	3.134E-3	1.541E-3	7.489E-4	3.598E-4	1.711E-4	8.051E-5	3.753E-5	1.734E-5
3.6	5.846E-3	5.082E-3	2.503E-3	1.218E-3	5.859E-4	2.788E-4	1.313E-4	6.124E-5	2.830E-5	1.296E-5
3.7	4.711E-3	4.086E-3	1.991E-3	9.590E-4	4.567E-4	2.153E-4	1.005E-4	4.643E-5	2.127E-5	9.659E-6
3.8	3.780E-3	3.272E-3	1.578E-3	7.520E-4	3.547E-4	1.656E-4	7.657E-5	3.508E-5	1.593E-5	7.175E-6
3.9	3.020E-3	2.608E-3	1.245E-3	5.874E-4	2.744E-4	1.269E-4	5.816E-5	2.641E-5	1.189E-5	5.312E-6
4.0	2.402E-3	2.070E-3	9.779E-4	4.570E-4	2.115E-4	9.691E-5	4.402E-5	1.982E-5	8.850E-6	3.920E-6
4.1	1.903E-3	1.636E-3	7.651E-4	3.541E-4	1.623E-4	7.373E-5	3.319E-5	1.482E-5	6.562E-6	2.883E-6
4.2	1.500E-3	1.288E-3	5.962E-4	2.733E-4	1.241E-4	5.588E-5	2.494E-5	1.104E-5	4.849E-6	2.114E-6
4.3	1.178E-3	1.009E-3	4.626E-4	2.101E-4	9.455E-5	4.219E-5	1.867E-5	8.195E-6	3.570E-6	1.544E-6
4.4	9.204E-4	7.869E-4	3.574E-4	1.608E-4	7.173E-5	3.173E-5	1.392E-5	6.061E-6	2.619E-6	1.124E-6
4.5	7.161E-4	6.111E-4	2.749E-4	1.226E-4	5.420E-5	2.377E-5	1.034E-5	4.466E-6	1.915E-6	8.154E-7
4.6	5.547E-4	4.724E-4	2.106E-4	9.306E-5	4.079E-5	1.774E-5	7.654E-6	3.279E-6	1.395E-6	5.894E-7
4.7	4.277E-4	3.636E-4	1.606E-4	7.035E-5	3.057E-5	1.318E-5	5.643E-6	2.398E-6	1.012E-6	4.246E-7
4.8	3.283E-4	2.786E-4	1.220E-4	5.296E-5	2.282E-5	9.759E-6	4.144E-6	1.748E-6	7.321E-7	3.047E-7
4.9	2.509E-4	2.125E-4	9.222E-5	3.970E-5	1.696E-5	7.196E-6	3.032E-6	1.269E-6	5.274E-7	2.179E-7
5.0	1.909E-4	1.614E-4	6.942E-5	2.963E-5	1.256E-5	5.285E-6	2.209E-6	9.172E-7	3.785E-7	1.552E-7

ภาคผนวก ข

รายชื่อหลักทรัพย์ในตลาด NYSE

ตารางที่ 42 รายชื่อหลักทรัพย์ในตลาด NYSE ที่ไม่จ่ายเงินปันผล และมีอุปชันในตลาด CBOE โดยที่มีข้อมูลอยู่ในโปรแกรม Datastream ซึ่งนำมาใช้ในงานวิจัยนี้

ชื่อบริษัท	ชื่อย่อ	กลุ่มอุตสาหกรรม	อุตสาหกรรม
AGILENT TECHNOLOGIES	A	Technology	Scientific & Technical Instruments
AES CORPORATION	AES	Utilities	Electric Utilities
AMERICAN INTERNATIONAL GROUP	AMD	Financial	Property & Casualty Insurance
ADVANCED MICRO DEVICES INCORPORATED	AIG	Technology	Semiconductor - Broad Line
AMERICAN TOWER CORPORATION	AMT	Technology	Diversified Communication Services
AUTONATION INCORPORATED	AN	Services	Auto Dealerships
AUTOZONE INCORPORATED	AZO	Services	Auto Parts Stores
BIG LOTS INCORPORATED	BIG	Services	Discount, Variety Stores
BOSTON SCIENTIFIC	BSX	Healthcare	Medical Instruments & Supplies
CB RICHARD ELLIS GROUP	CBG	Financial	Property Management
COACH INCORPORATED	COH	Consumer Goods	Textile - Apparel Footwear & Accessories
COMPUTER SCIENCES COMPANY	CSC	Technology	Information Technology Services
CONVERGYS CORPORATION	CVG	Technology	Business Software & Services
COVENTRY HEALTH CARE	CVH	Healthcare	Health Care Plans
DEAN FOODS COMPANY	DF	Consumer Goods	Dairy Products
DYNEGY INCORPORATED (HOLDING)	DYN	Utilities	Electric Utilities
EMC CORPORATION	EMC	Technology	Data Storage Devices
FIRST HORIZON NATION	FHN	Financial	Regional - Southeast Banks
FOREST LABORATORIES	FRX	Healthcare	Drug Manufacturers – Other
GAMESTOP CORPORATION HOLDING	GME	Services	Electronics Stores
GOODYEAR TIRE & RUBBER COMPANY	GT	Consumer Goods	Rubber & Plastics
HOSPIRA INCORPORATED	HSP	Healthcare	Drug Delivery
HUMANA INCORPORATED	HUM	Healthcare	Health Care Plans
INTERPUBLIC GROUP COMPANY	IPG	Services	Advertising Agencies
JACOBS ENGINEERING GROUP INCORPORATED	JEC	Services	Technical Services
JUNIPER NETWORKS, INC.	JNPR	Technology	Networking & Communication Devices
KING PHARMACEUTICALS	KG	Healthcare	Drug Manufacturers – Other
KOHL'S CORPORATION	KSS	Services	Department Stores
LABORATORY CORPORATION OF AMERICA	LH	Healthcare	Medical Laboratories & Research
ELI LILLY & CO.	LLY	Healthcare	Major Drugs
LSI CORPORATION	LSI	Technology	Semiconductor – Specialized
LEXMARK INTERNATIONAL INCORPORATED	LXK	Technology	Computer Based Systems
MEDCO HEALTH SOLUTIONS	MHS	Services	Drugs Wholesale
MILLIPORE CORPORATION	MIL	Technology	Scientific & Technical Instruments

ตารางที่ 42 รายชื่อหลักทรัพย์ในตลาด NYSE ที่ไม่จ่ายเงินปันผลและมีอุปชันในตลาด CBOE โดยที่มีข้อมูลอยู่ในโปรแกรม Datastream ซึ่งนำมาใช้ในงานวิจัยนี้ (ต่อ)

ชื่อบริษัท	ชื่อช่อ	กลุ่มอุตสาหกรรม	อุตสาหกรรม
MONSTER WORLDWIDE, INC.	MWW	Services	Advertising Agencies
NABORS INDUSTRIES LIMITED NEW	NBR	Basic Materials	Oil & Gas Drilling & Exploration
NATIONAL OILWELL VARCO INCORPORATED	NOV	Basic Materials	Oil & Gas Equipment & Services
OFFICE DEPOT INCORPORATED	ODP	Services	Specialty Retail, Other
PACTIV CORPORATION	PTV	Consumer Goods	Packaging & Containers
TRANSOCEAN INCORPORATED	RIG	Basic Materials	Oil & Gas Drilling & Exploration
SAINT JUDE MEDICAL INCORPORATED	STJ	Healthcare	Medical Appliances & Equipment
CONSTELLATION BRANDS	STZ	Consumer Goods	Beverages - Wineries & Distillers
TERADYNE INCORPORATED	TER	Technology	Semiconductor Equipment & Materials
TEREX CORPORATION	TEX	Industrial Goods	Farm & Construction Machinery
TENET HEALTHCARE CORPORATION	THC	Healthcare	Hospitals
THERMO FISHER SCIENTIFIC	TMO	Healthcare	Medical Instruments & Supplies
UNISYS CORPORATION	UIS	Technology	Information Technology Services
VARIAN MEDICAL SYSTEMS INCORPORATED	VAR	Healthcare	Medical Appliances & Equipment
WATERS CORPORATION	WAT	Technology	Scientific & Technical Instruments
WEATHERFORD INTERNATIONAL LIMITED	WFT	Basic Materials	Oil & Gas Equipment & Services
WELLPOINT HEALTH NETWORKS INCORPORATED	WLP	Healthcare	Health Care Plans
WATSON PHARMACEUTICALS INCORPORATED	WPI	Healthcare	Drugs – Generic
ZIMMER HOLDINGS INCORPORATED	ZMH	Healthcare	Medical Appliances & Equipment

## ประวัติผู้เขียน

ชื่อ – สกุล	นายวรพจน์ คุณาประสิทธิ์
วัน/เดือน/ปี เกิด	25 พฤศจิกายน 2525
ประวัติการศึกษา	สำเร็จการศึกษามัธยมศึกษาตอนปลาย โรงเรียนนวมินทราชูทิศ พายัพ ปีการศึกษา 2542 สำเร็จการศึกษาระดับปริญญาวิทยาศาสตรบัณฑิต สาขาวิศวกรรมไฟฟ้า มหาวิทยาลัยเชียงใหม่ ปีการศึกษา 2546
ประสบการณ์	วิศวกรไฟฟ้า บริษัท Sony Device Technology (Thailand) Co., Ltd. 2547 วิศวกรการผลิต บริษัท Hana Microelectronics Public Co., Ltd. 2548 - 2549 วิศวกรไฟฟ้ากำลัง ระดับ 4 การไฟฟ้าส่วนภูมิภาค เขต 1 (ภาคเหนือ) 2551 – 2553
ผลงานวิจัย	การจำลองเหตุการณ์การสื่อสาร โดย MAP Algorithm ด้วยโปรแกรม MATLAB