

$u = e^x$ with DE $-u_{xx} + u = 0$ on $[0, 1]$

D6

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	8.369210e-04		1.131598e+03	0.000073
0.250000	3.078747e-04	2.000073	1.565085e+03	0.000068
0.125000	2.293277e-04	0.441812	3.808061e+03	0.000084
0.062500	1.985604e-04	0.192078	1.280367e+04	0.000100
0.031250	1.873743e-04	0.072481	6.273596e+04	0.000168
0.015625	1.830857e-04	0.027785	3.279182e+05	0.000372
0.007812	1.813385e-04	0.011187	1.777962e+06	0.001801
0.003906	1.805767e-04	0.004811	9.837457e+06	0.009891

D8

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	3.191769e-04		2.570877e+03	0.000089
0.250000	6.044227e-05	3.328114	2.277282e+03	0.000086
0.125000	2.514480e-05	1.315557	4.454572e+03	0.000094
0.062500	1.652696e-05	0.559544	1.274885e+04	0.000105
0.031250	1.365793e-05	0.238340	5.323901e+04	0.000172
0.015625	1.253535e-05	0.102921	2.702692e+05	0.000382
0.007812	1.204825e-05	0.046238	1.441716e+06	0.001899
0.003906	1.182285e-05	0.021583	7.907208e+06	0.010337

D10

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	9.505684e-05		6.672527e+03	0.000114
0.250000	1.262752e-05	4.037193	3.642506e+03	0.000098
0.125000	4.365947e-06	1.593065	5.757604e+03	0.000109
0.062500	2.642780e-06	0.669338	1.470227e+04	0.000136
0.031250	2.112534e-06	0.279929	5.251371e+04	0.000199
0.015625	1.915566e-06	0.117450	2.595958e+05	0.000457
0.007812	1.833393e-06	0.051152	1.364211e+06	0.002117
0.003906	1.796369e-06	0.023315	7.420923e+06	0.009487

D12

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	2.341806e-05		1.782620e+04	0.000118
0.250000	1.996945e-06	4.923778	5.948582e+03	0.000124
0.125000	5.452761e-07	1.947122	7.559087e+03	0.000121
0.062500	2.936220e-07	0.825332	1.736247e+04	0.000157
0.031250	2.221280e-07	0.348800	5.457434e+04	0.000239
0.015625	1.966604e-07	0.146130	2.601852e+05	0.000467
0.007812	1.863243e-07	0.062988	1.347933e+06	0.002147
0.003906	1.817356e-07	0.028498	7.274457e+06	0.010306

D14

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	4.787990e-06		4.816307e+04	0.000136
0.250000	3.022389e-07	5.525296	9.778351e+03	0.000130
0.125000	6.459290e-08	2.314670	9.916494e+03	0.000136
0.062500	3.079475e-08	0.987680	2.054746e+04	0.000179
0.031250	2.196625e-08	0.422296	6.064749e+04	0.000240
0.015625	1.894751e-08	0.177401	2.648618e+05	0.000531
0.007812	1.775611e-08	0.075767	1.353403e+06	0.002187
0.003906	1.722993e-08	0.034379	7.247818e+06	0.011009

D16

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	4.937864e-08		1.307104e+05	0.000147
0.250000	4.576412e-08	0.152035	1.611174e+04	0.000148
0.125000	6.985430e-09	2.819511	1.295324e+04	0.000165
0.062500	2.794743e-09	1.221449	2.421893e+04	0.000175
0.031250	1.828513e-09	0.530296	6.741897e+04	0.000249
0.015625	1.516115e-09	0.224823	2.712849e+05	0.000555
0.007812	1.394858e-09	0.097251	1.367819e+06	0.002391
0.003906	1.365332e-09	0.024451	7.270019e+06	0.010636

D18

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	1.629737e-06		3.553592e+05	0.000168
0.250000	2.213053e-08	8.598431	2.657072e+04	0.000155
0.125000	2.217940e-09	3.450569	1.684561e+04	0.000186
0.062500	6.296435e-10	1.678907	2.838944e+04	0.000212
0.031250	3.201347e-10	0.845515	7.475731e+04	0.000320
0.015625	2.274503e-10	0.410172	2.785348e+05	0.000617
0.007812	1.943128e-10	0.183706	1.386176e+06	0.002314
0.003906	1.768914e-10	0.107352	7.313438e+06	0.011998

D20

h	Euclidean Error	Convergence rate	Condition Number	Average Com putation time
0.500000	2.430960e-06		9.667048e+05	0.000198
0.250000	1.979640e-08	9.621082	4.383267e+04	0.000169
0.125000	1.759083e-09	3.631061	2.182858e+04	0.000202
0.062500	5.144946e-10	1.639151	3.309819e+04	0.000250
0.031250	2.841547e-10	0.742083	8.261245e+04	0.000336
0.015625	2.177212e-10	0.319564	2.862220e+05	0.000677
0.007812	1.944103e-10	0.132118	1.406345e+06	0.002322
0.003906	1.699890e-10	0.153414	7.366389e+06	0.011020