

$t$	$x_i$	Exact	Error
0.1	$x_1$	1.182735	$1.1237 \times 10^{-10}$
	$x_2$	1.0136462	$1.1237 \times 10^{-10}$
	$x_2$	1.0136462	$1.1237 \times 10^{-10}$
0.1	$x_1$	1.182735	$1.1237 \times 10^{-10}$
	$x_2$	1.0136462	$1.1237 \times 10^{-10}$
	$x_2$	1.0136462	$1.1237 \times 10^{-10}$

$t$	$x_i$	Equally Spacing Points		Equally Spacing Points	
		Exact	Error	Exact	Error
0.1	$x_1$	1.99004150	$1.8168 \times 10^{-8}$	1.99004150	$1.8168 \times 10^{-8}$
	$x_2$	2.01495850	$3.9086 \times 10^{-8}$	2.00463754	$3.0422 \times 10^{-8}$
	$x_3$	2.03987550	$6.0004 \times 10^{-8}$	2.03987550	$6.0004 \times 10^{-8}$
	$x_4$	2.06479249	$8.0922 \times 10^{-8}$	2.07511345	$8.9587 \times 10^{-8}$
	$x_5$	2.08970949	$1.0184 \times 10^{-7}$	2.08970949	$1.0184 \times 10^{-7}$
0.01	$x_1$	1.99990000	$1.7986 \times 10^{-14}$	1.99990000	$1.8208 \times 10^{-14}$
	$x_2$	2.00239992	$2.2604 \times 10^{-13}$	2.00136442	$1.4033 \times 10^{-13}$
	$x_3$	2.00489984	$4.3476 \times 10^{-13}$	2.00489984	$4.3476 \times 10^{-13}$
	$x_4$	2.00739975	$6.4304 \times 10^{-13}$	2.00843525	$7.2964 \times 10^{-13}$
	$x_5$	2.00989967	$8.5132 \times 10^{-13}$	2.00989967	$8.5132 \times 10^{-13}$

For  $N = 7$

For  $N = 9$

Table for  $u_t = x^2 + \frac{1}{4}u_x^2$  with  $u(x, 0) = 0$  For  $N = 5$

For  $N = 7$

For  $N = 9$

$t$	$x_i$	Equally Spacing Points		Equally Spacing Points	
		Exact	Error	Exact	Error
0.1	$x_1$	1.99004150	$1.8168 \times 10^{-8}$	1.99004150	$1.8168 \times 10^{-8}$
	$x_2$	2.00665283	$3.2114 \times 10^{-8}$	1.99671799	$2.3773 \times 10^{-8}$
	$x_3$	2.02326416	$4.6059 \times 10^{-8}$	2.01495850	$3.9086 \times 10^{-8}$
	$x_4$	2.03987550	$6.0004 \times 10^{-8}$	2.03987550	$6.0004 \times 10^{-8}$
	$x_5$	2.05648683	$7.3950 \times 10^{-8}$	2.06479249	$8.0922 \times 10^{-8}$
	$x_6$	2.07309816	$8.7895 \times 10^{-8}$	2.08303300	$9.6235 \times 10^{-8}$
	$x_7$	2.08970949	$1.0184 \times 10^{-7}$	2.08970949	$1.0184 \times 10^{-7}$
0.01	$x_1$	1.99990000	$1.7097 \times 10^{-14}$	1.99990000	$1.7764 \times 10^{-14}$
	$x_2$	2.00156662	$1.5721 \times 10^{-13}$	2.00056985	$7.3719 \times 10^{-14}$
	$x_3$	2.00323323	$2.9576 \times 10^{-13}$	2.00239992	$2.2649 \times 10^{-13}$
	$x_4$	2.00489984	$4.3476 \times 10^{-13}$	2.00489984	$4.3476 \times 10^{-13}$
	$x_5$	2.00656645	$5.7332 \times 10^{-13}$	2.00739975	$6.4304 \times 10^{-13}$
	$x_6$	2.00823306	$7.1232 \times 10^{-13}$	2.00922982	$7.9536 \times 10^{-13}$
	$x_7$	2.00989967	$8.5043 \times 10^{-13}$	2.00989967	$8.5132 \times 10^{-13}$

$t$	$x_i$	Equally Spacing Points		Equally Spacing Points	
		Exact	Error	Exact	Error
0.1	$x_1$	1.99004150	$1.8168 \times 10^{-8}$	1.99004150	$1.8169 \times 10^{-8}$
	$x_2$	2.00250000	$2.8627 \times 10^{-8}$	1.99383489	$2.1353 \times 10^{-8}$
	$x_3$	2.01495850	$3.9086 \times 10^{-8}$	2.00463754	$3.0422 \times 10^{-8}$
	$x_4$	2.02741700	$4.9545 \times 10^{-8}$	2.02080485	$4.3994 \times 10^{-8}$
	$x_5$	2.03987550	$6.0004 \times 10^{-8}$	2.03987550	$6.0004 \times 10^{-8}$
	$x_6$	2.05233399	$7.0463 \times 10^{-8}$	2.05894614	$7.6014 \times 10^{-8}$
	$x_7$	2.06479249	$8.0922 \times 10^{-8}$	2.07511345	$8.9587 \times 10^{-8}$
	$x_8$	2.07725099	$9.1381 \times 10^{-8}$	2.08591611	$9.8656 \times 10^{-8}$
	$x_9$	2.08970949	$1.0184 \times 10^{-7}$	2.08970949	$1.0184 \times 10^{-7}$
0.01	$x_1$	1.99990000	$1.7764 \times 10^{-14}$	1.99990000	$1.8874 \times 10^{-14}$
	$x_2$	2.00114996	$1.2212 \times 10^{-13}$	2.00028059	$4.9738 \times 10^{-14}$
	$x_3$	2.00239992	$2.2604 \times 10^{-13}$	2.00136442	$1.4033 \times 10^{-13}$
	$x_4$	2.00364988	$3.3085 \times 10^{-13}$	2.00298648	$2.7534 \times 10^{-13}$
	$x_5$	2.00489984	$4.3476 \times 10^{-13}$	2.00489984	$4.3476 \times 10^{-13}$
	$x_6$	2.00614980	$5.3868 \times 10^{-13}$	2.00681319	$5.9419 \times 10^{-13}$
	$x_7$	2.00739975	$6.4304 \times 10^{-13}$	2.00843525	$7.2919 \times 10^{-13}$
	$x_8$	2.00864971	$7.4696 \times 10^{-13}$	2.00951908	$8.1979 \times 10^{-13}$
	$x_9$	2.00989967	$8.5043 \times 10^{-13}$	2.00989967	$8.5176 \times 10^{-13}$

$t$	$x_i$	Equally Spacing Points		Equally Spacing Points	
		Exact	Error	Exact	Error
0.1	$x_1$	0.00000000	0	0.00000000	0
	$x_2$	0.00627092	$5.1880 \times 10^{-9}$	0.00215184	$1.7802 \times 10^{-9}$
	$x_3$	0.02508367	$2.0752 \times 10^{-8}$	0.02508367	$2.0752 \times 10^{-8}$
	$x_4$	0.05643825	$4.6692 \times 10^{-8}$	0.07309917	$6.0475 \times 10^{-8}$
	$x_5$	0.10033467	$8.3007 \times 10^{-8}$	0.10033467	$8.3007 \times 10^{-8}$
0.01	$x_1$	0.00000000	0	0.00000000	0
	$x_2$	0.00062502	$5.2081 \times 10^{-14}$	0.00021447	$1.7871 \times 10^{-14}$
	$x_3$	0.00250008	$2.0833 \times 10^{-13}$	0.00250008	$2.0833 \times 10^{-13}$
	$x_4$	0.00562519	$4.6873 \times 10^{-13}$	0.00728578	$6.0710 \times 10^{-13}$
	$x_5$	0.01000033	$8.3330 \times 10^{-13}$	0.01000033	$8.3330 \times 10^{-13}$

$t$	$x_i$	Equally Spacing Points		Equally Spacing Points	
		Exact	Error	Exact	Error
0.1	$x_1$	0.00000000	0	0.00000000	0
	$x_2$	0.00278707	$2.3058 \times 10^{-9}$	0.00045023	$3.7248 \times 10^{-10}$
	$x_3$	0.01114830	$9.2230 \times 10^{-9}$	0.00627092	$5.1880 \times 10^{-9}$
	$x_4$	0.02508367	$2.0752 \times 10^{-8}$	0.02508367	$2.0752 \times 10^{-8}$
	$x_5$	0.04459319	$3.6892 \times 10^{-8}$	0.05643825	$4.6692 \times 10^{-8}$
	$x_6$	0.06967686	$5.7644 \times 10^{-8}$	0.08734261	$7.2259 \times 10^{-8}$
	$x_7$	0.10033467	$8.3007 \times 10^{-8}$	0.10033467	$8.3007 \times 10^{-8}$
0.01	$x_1$	0.00000000	0	0.00000000	0
	$x_2$	0.00027779	$2.3147 \times 10^{-14}$	0.00004487	$3.7393 \times 10^{-15}$
	$x_3$	0.00111115	$9.2589 \times 10^{-14}$	0.00062502	$5.2081 \times 10^{-14}$
	$x_4$	0.00250008	$2.0833 \times 10^{-13}$	0.00250008	$2.0833 \times 10^{-13}$
	$x_5$	0.00444459	$3.7036 \times 10^{-13}$	0.00562519	$4.6873 \times 10^{-13}$
	$x_6$	0.00694468	$5.7868 \times 10^{-13}$	0.00870542	$7.2540 \times 10^{-13}$
	$x_7$	0.01000033	$8.3330 \times 10^{-13}$	0.01000033	$8.3330 \times 10^{-13}$

$t$	$x_i$	Equally Spacing Points		Equally Spacing Points	
		Exact	Error	Exact	Error
0.1	$x_1$	0.00000000	0	0.00000000	0
	$x_2$	0.00156773	$1.2970 \times 10^{-9}$	0.00014534	$1.2024 \times 10^{-10}$
	$x_3$	0.00627092	$5.1880 \times 10^{-9}$	0.00215184	$1.7802 \times 10^{-9}$
	$x_4$	0.01410956	$1.1673 \times 10^{-8}$	0.00955888	$7.9081 \times 10^{-9}$
	$x_5$	0.02508367	$2.0752 \times 10^{-8}$	0.02508367	$2.0752 \times 10^{-8}$
	$x_6$	0.03919323	$3.2425 \times 10^{-8}$	0.04795529	$3.9674 \times 10^{-8}$
	$x_7$	0.05643825	$4.6692 \times 10^{-8}$	0.07309917	$6.0475 \times 10^{-8}$
	$x_8$	0.07681873	$6.3552 \times 10^{-8}$	0.09284249	$7.6809 \times 10^{-8}$
	$x_9$	0.10033467	$8.3007 \times 10^{-8}$	0.10033467	$8.3007 \times 10^{-8}$
0.01	$x_1$	0.00000000	0	0.00000000	0
	$x_2$	0.00015626	$1.3020 \times 10^{-14}$	0.00001449	$1.2071 \times 10^{-15}$
	$x_3$	0.00062502	$5.2081 \times 10^{-14}$	0.00021447	$1.7871 \times 10^{-14}$
	$x_4$	0.00140630	$1.1718 \times 10^{-13}$	0.00095273	$7.9389 \times 10^{-14}$
	$x_5$	0.00250008	$2.0833 \times 10^{-13}$	0.00250008	$2.0833 \times 10^{-13}$
	$x_6$	0.00390638	$3.2551 \times 10^{-13}$	0.00477969	$3.9828 \times 10^{-13}$
	$x_7$	0.00562519	$4.6873 \times 10^{-13}$	0.00728578	$6.0710 \times 10^{-13}$
	$x_8$	0.00765651	$6.3800 \times 10^{-13}$	0.00925359	$7.7108 \times 10^{-13}$
	$x_9$	0.01000033	$8.3330 \times 10^{-13}$	0.01000033	$8.3330 \times 10^{-13}$