

SOLUTION OF THE INITIAL VALUE PROBLEM

$$y' = y \cos x \quad y(0) = 1 \quad \text{on } [0, 2]$$

ERRORS

x	Exact Soln	Euler Method				Runge - Kutta	
		Expl.	Impl.	Trap.	Mod.	RK-4	RKF
0.00	1.00000	1.0000	1.0000	1.0000	1.0000	1.00000	1.00000
0.20	1.21978	1.2000	1.2438	1.2195	1.2176	1.21978	1.21978
0.40	1.47612	1.4352	1.5247	1.4749	1.4711	1.47612	1.47612
0.60	1.75882	1.6996	1.8261	1.7556	1.7503	1.75881	1.75882
0.80	2.04901	1.9801	2.1217	2.0429	2.0369	2.04900	2.04901
1.00	2.31978	2.2561	2.3788	2.3100	2.3042	2.31976	2.31978
1.20	2.53968	2.4999	2.5647	2.5264	2.5212	2.53967	2.53978
1.40	2.67902	2.6810	2.6549	2.6632	2.6585	2.67900	2.67902
1.60	2.71712	2.7722	2.6395	2.7005	2.6957	2.71710	2.71712
1.80	2.64811	2.7560	2.5248	2.6328	2.6269	2.64810	2.64811
2.00	2.48258	2.6307	2.3308	2.4702	2.4629	2.48256	2.48258
		Euler Methods				Runge - Kutta	
		Expl.	Impl.	Trap.	Mod.	RK-4	RKF
		0.0000	0.0000	0.0000	0.0000	0.0E-00	0.0E-00
		-0.0198	0.0240	-0.0003	-0.0022	-2.8E-06	1.4E-06
		-0.0409	0.0485	-0.0012	-0.0050	-6.3E-06	-1.9E-06
		-0.0592	0.0673	-0.0032	-0.0085	-9.8E-06	1.2E-06
		-0.0689	0.0727	-0.0061	-0.0121	-1.3E-05	1.3E-06
		-0.0637	0.0590	-0.0098	-0.0156	-1.6E-05	3.2E-06
		-0.0398	0.0250	-0.0133	-0.0185	-1.7E-05	9.7E-05
		0.0020	-0.0241	-0.0159	-0.0205	-1.8E-05	3.6E-06
		0.0550	-0.0776	-0.0166	-0.0214	-1.9E-05	-3.0E-06
		0.1079	-0.1234	-0.0153	-0.0212	-1.8E-05	-3.8E-06
		0.1482	-0.1518	-0.0124	-0.0197	-1.7E-05	2.3E-06