**3)** The exact solution for the differential is .

==========================================================

n tn yn |yn-exact(n)|

0 1.000000000000000 1.000000000000000 0.000000000000000

1 1.555555555555556 2.111111111111111 0.131739836878505

2 2.111111111111111 3.420634920634921 0.267928816562213

3 2.666666666666667 4.876357560568088 0.405853780796517

4 3.222222222222222 6.447820941241995 0.544630872853270

5 3.777777777777778 8.115069762528929 0.683888260528629

6 4.333333333333334 9.864017930221092 0.823442701217093

7 4.888888888888889 11.68419116913833 0.963193551929436

8 5.444444444444445 13.56749572118687 1.103080980807123

9 6.000000000000000 15.50748961563905 1.243067199729282

Maximum error: 1.243067199729282

==========================================================



Euler’s method is close to the exact solution of the IVP.

**4)**

=========================================================================================

N = 80

**Step Size yn |yn-exact(n)| Global Error Bound**

0.063291139240506 16.594275415583386 0.156281399784945 4.4323346369113 True

Maximum error: 0.1562813997849446

Lipschitz Constant: 1.0

Maximum of |y''(t)|: 1.0

=========================================================================================

