(1)

```
(a)Euler's method
t       Euler y         Exact y         Error
-------------------------------------------------------------------------
1.0     0.000000        0.000000        0.000000
1.1     0.100000        0.105160        0.005160
1.2     0.209917        0.221243        0.011325
1.3     0.330471        0.349121        0.018651
1.4     0.462354        0.489682        0.027328
1.5     0.606285        0.643875        0.037590
1.6     0.763041        0.812753        0.049711
1.7     0.933475        0.997494        0.064019
1.8     1.118537        1.199439        0.080902
1.9     1.319293        1.420116        0.100823
2.0     1.536943        1.661282        0.124338


(b)Taylor's method of order 2
t       Taylor y        Exact y         Error
-------------------------------------------------------------------------
1.0     0.000000        0.000000        0.000000
1.0     0.000000        0.000000        0.000000
1.1     0.105000        0.105160        0.000160
1.0     0.000000        0.000000        0.000000
1.0     0.000000        0.000000        0.000000
1.1     0.105000        0.105160        0.000160
1.2     0.220919        0.221243        0.000324
1.3     0.348612        0.349121        0.000509
1.4     0.488954        0.489682        0.000728
1.5     0.642883        0.643875        0.000993
1.6     0.811438        0.812753        0.001315
1.7     0.995787        0.997494        0.001707
1.8     1.197252        1.199439        0.002187
1.9     1.417344        1.420116        0.002772
2.0     1.657795        1.661282        0.003487
```

(2)

```
Runge-Kutta 方法結果 (h = 0.05)
t       RK u1           RK u2           Exact u1        Exact u2        Error u1        Error u2
-------------------------------------------------------------------------------------------------
0.00    1.333333        0.666667        1.333333        0.666667        0.000000        0.000000
0.05    1.736416        -0.557790       1.912059        -0.909077       0.175642        0.351286
0.10    1.712220        -0.870315       1.793063        -1.032002       0.080842        0.161687
0.15    1.572693        -0.902907       1.601967        -0.961459       0.029274        0.058551
0.20    1.414072        -0.855015       1.423902        -0.874681       0.009831        0.019666
0.25    1.264430        -0.788784       1.267646        -0.795221       0.003216        0.006436
0.30    1.130526        -0.722892       1.131577        -0.724999       0.001051        0.002107
0.35    1.012645        -0.662347       1.012999        -0.663060       0.000354        0.000712
0.40    0.909278        -0.607948       0.909409        -0.608214       0.000130        0.000266
0.45    0.818571        -0.559267       0.818630        -0.559389       0.000059        0.000123
0.50    0.738752        -0.515581       0.738788        -0.515658       0.000036        0.000076
0.55    0.668247        -0.476164       0.668275        -0.476225       0.000028        0.000061
0.60    0.605684        -0.440356       0.605710        -0.440411       0.000025        0.000055
0.65    0.549886        -0.407584       0.549909        -0.407635       0.000024        0.000051
0.70    0.499837        -0.377355       0.499860        -0.377404       0.000023        0.000049
0.75    0.454673        -0.349248       0.454695        -0.349296       0.000022        0.000047
0.80    0.413650        -0.322908       0.413671        -0.322954       0.000021        0.000045
0.85    0.376137        -0.298033       0.376158        -0.298076       0.000020        0.000043
0.90    0.341595        -0.274368       0.341614        -0.274409       0.000019        0.000041
0.95    0.309565        -0.251700       0.309583        -0.251739       0.000018        0.000039
1.00    0.279658        -0.229852       0.279675        -0.229888       0.000017        0.000036

Runge-Kutta 方法結果 (h = 0.1)
t       RK u1           RK u2           Exact u1        Exact u2        Error u1        Error u2
-------------------------------------------------------------------------------------------------
0.00    1.333333        0.666667        1.333333        0.666667        0.000000        0.000000
0.10    -2.645181       7.844542        1.793063        -1.032002       4.438244        8.876545
0.20    -18.451687      38.876582       1.423902        -0.874681       19.875589       39.751263
0.30    -87.473246      176.484740      1.131577        -0.724999       88.604823       177.209739
0.40    -394.077396     789.365487      0.909409        -0.608214       394.986805      789.973701
0.50    -1760.049044    3521.060091     0.738788        -0.515658       1760.787832     3521.575749
0.60    -7848.701114    15698.173311    0.605710        -0.440411       7849.306823     15698.613722
0.70    -34990.435183   69981.492746    0.499860        -0.377404       34990.935043    69981.870150
0.80    -155983.489391  311967.483226   0.413671        -0.322954       155983.903063   311967.806179
0.90    -695350.551451  1390701.511767  0.341614        -0.274409       695350.893065   1390701.786176
1.00    -3099761.007612 6199522.344723  0.279675        -0.229888       3099761.287287  6199522.574610
PS C:\Users\USER>
```