Question 1

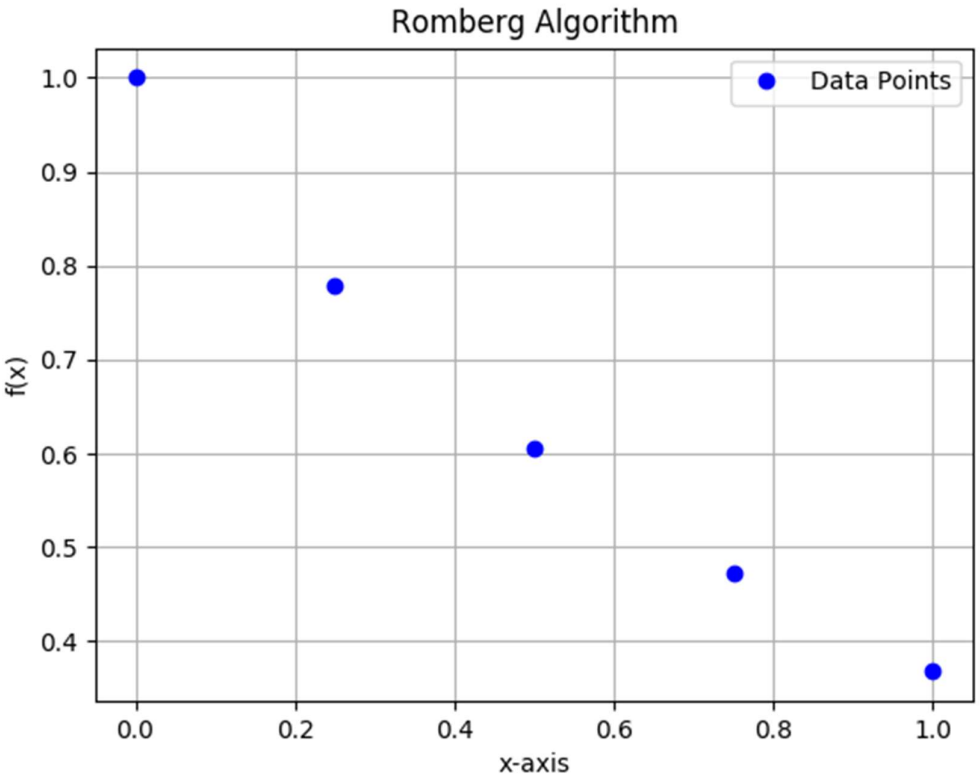
Input File

```
f(t,y) = exp(-x)  ! Function
0,1          !a,b
0.01         !allowable error %
1            ! Gauss-Legendre Quad

```

Romberg Method

Output :

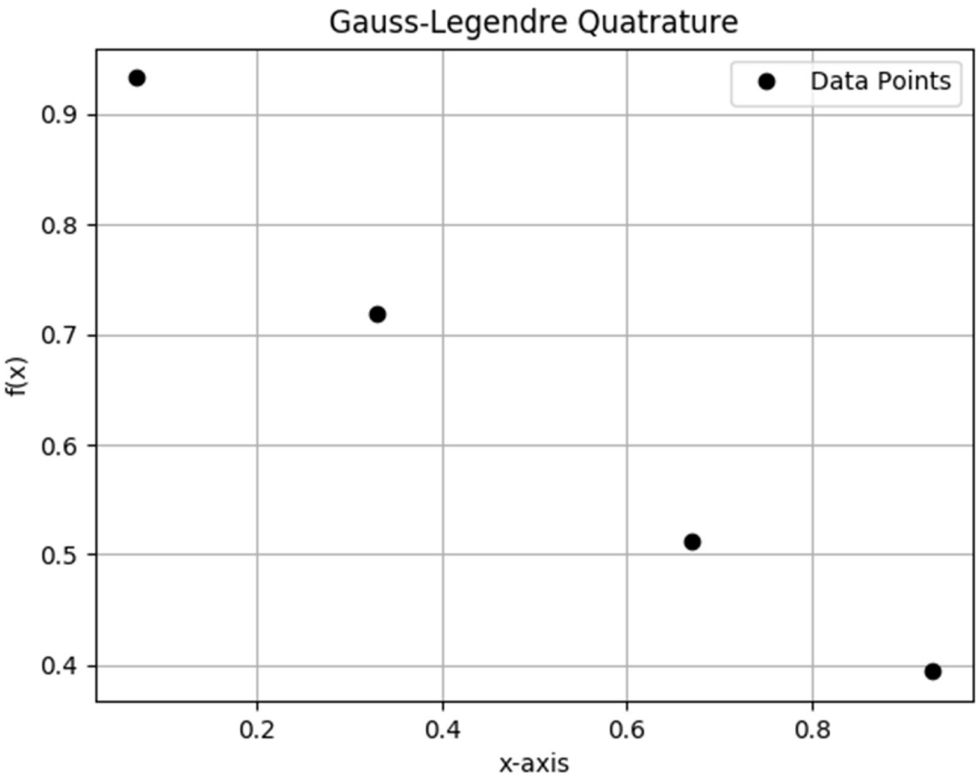
```
        Romberg Algorithm
     I  = 0.63212088
Number of intervals : 4
Approximate Relative Error(%) : -0.0021

```



Gauss Legendre Method

Output:

```
        Gauss-Legendre Quatrature
                        I =   0.63212056
Number of points used      : 4
Approximate Relative Error : 0.0
```



Question 2

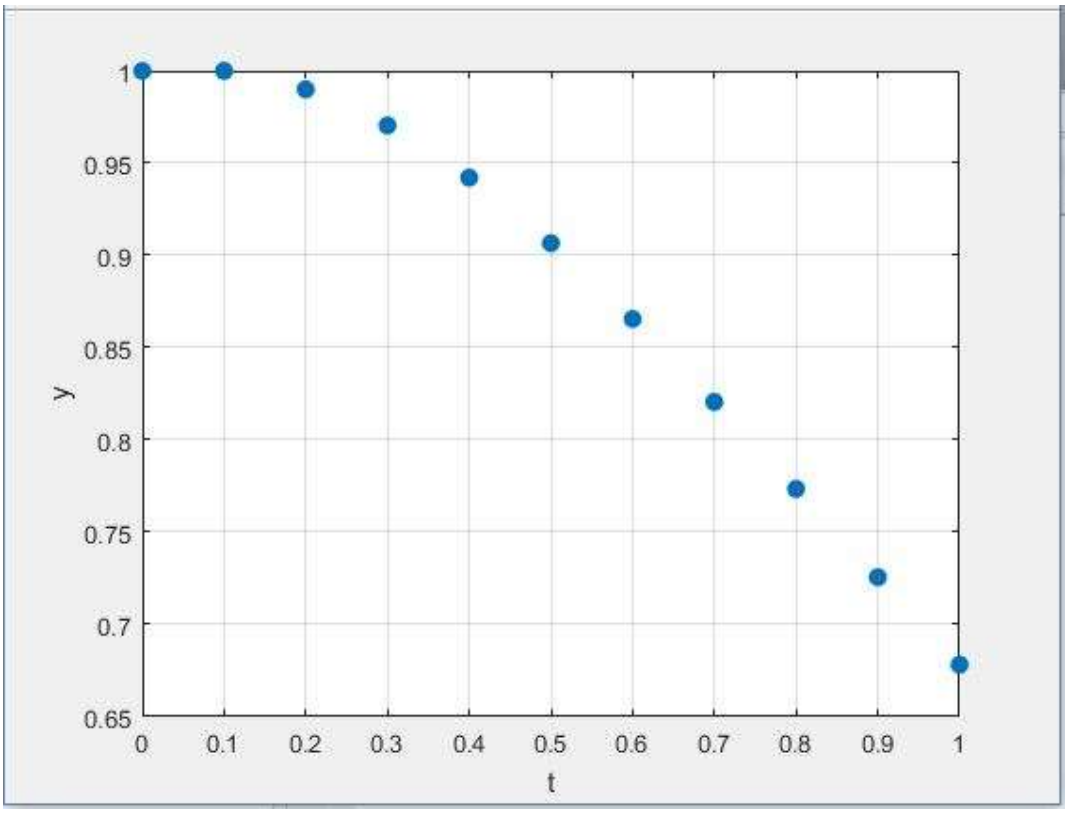
Input File :

```
-y^2*t
0,1
1
0.1
```

Forward Euler Method:

Output:

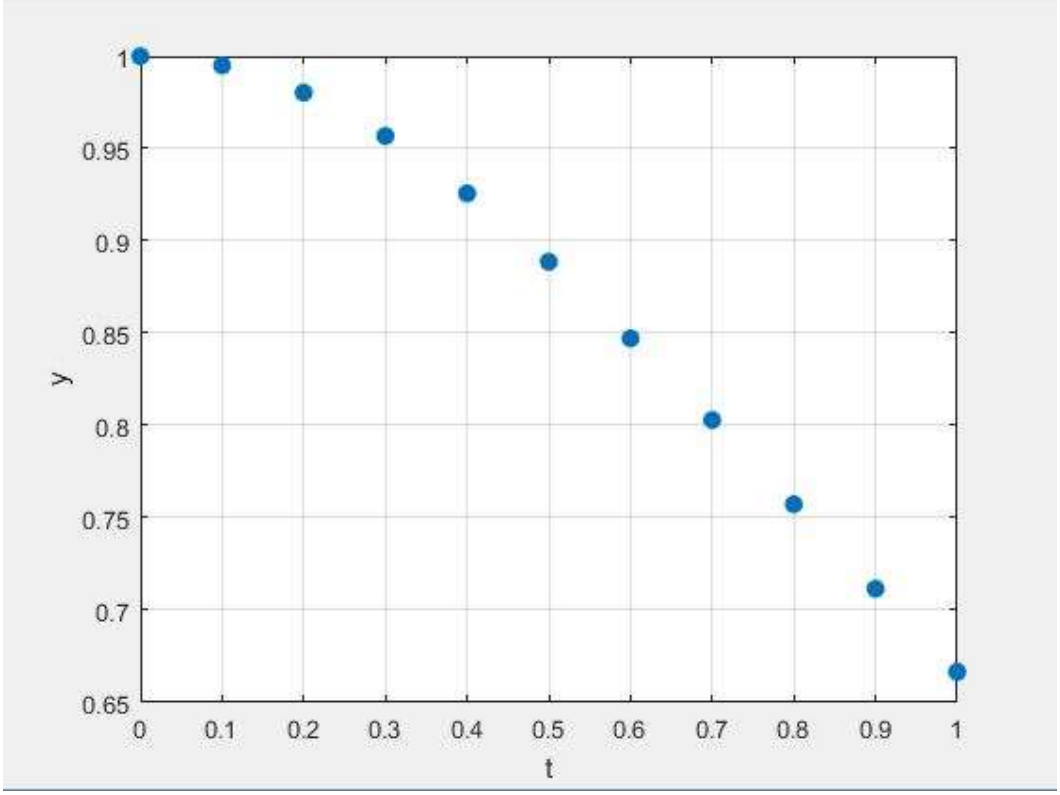
t	y
0.0000	1.00000000
0.1000	1.00000000
0.2000	0.99000000
0.3000	0.97039800
0.4000	0.94214783
0.5000	0.90664213
0.6000	0.86554213
0.7000	0.82059234
0.8000	0.77345632
0.9000	0.72559754
1.0000	0.67821328



2nd Order Runge Kutta Method

Output:

t	y
0.0000	1.00000000
0.1000	0.99500000
0.2000	0.98032137
0.3000	0.95680998
0.4000	0.92574282
0.5000	0.88866429
0.6000	0.84721351
0.7000	0.80297429
0.8000	0.75736620
0.9000	0.71158180
1.0000	0.66656446



4th Order Runge Kutta

Output:

t	y
0.0000	1.00000000
0.1000	0.99500832
0.2000	0.98034506
0.3000	0.95685230
0.4000	0.92580200
0.5000	0.88873379
0.6000	0.84728365
0.7000	0.80303442
0.8000	0.75740668
0.9000	0.71159539
1.0000	0.66654690