```
>> load('Numerical Methods Q1.mat')
>> thetah=ode1b(F,t0,h,tf,theta0)

Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
the problem appears regular as measured by the gradient.

<stopping criteria details>

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Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
the problem appears regular as measured by the gradient.

<stopping criteria details>

thetah =

  100.0000
   95.0000
   95.2500
   95.2375
   95.2381
```

```
   95.2381

>> theta2h=ode1b(F,t0,2*h,tf,theta0)

Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
the problem appears regular as measured by the gradient.

<stopping criteria details>

Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
the problem appears regular as measured by the gradient.

<stopping criteria details>

Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
the problem appears regular as measured by the gradient.

<stopping criteria details>

Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
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<stopping criteria details>

Equation solved.

fsolve completed because the vector of function values is near zero
as measured by the value of the function tolerance, and
the problem appears regular as measured by the gradient.

<stopping criteria details>

theta2h =

  100.0000
   90.0000
   91.0000
   90.9000
```

```
   90.9100
   90.9090

>> E1=95.2381-exact

E1 =

   87.0296

>> E2h=90.9090-exact

E2h =

   82.7005

>>  n=log((E1)/(E2h))/log(0.5)

n =

   -0.0736

>>  truncation_error_backward_Euler = (h)^n

truncation_error_backward_Euler =

    1.1847

>> %the above is the truncation error obtained in the backward euler method
>>
```