```
t=linspace(0,20,1000);
A=[1,1];%因为 H(s)=1/(1+RCs),RC=1,
B=1;%所以根据公式能知晓 A=[1,1],B=1;
apos k=zeros(1,5);
aneg k=zeros(1,5);
s=zeros(5,1000);
for k=(1:5)
    apos_k(k)=(1-cos(pi*k))*sin(pi*k/2)/(pi*k);
    aneg_k(k)=(1-\cos(pi*(-k)))*\sin(pi*(-k)/2)/(pi*(-k));
    s(k,:)=apos_k(k)*exp(1i*k*t)+aneg_k(k)*exp(1i*(-k)*t);
   y(k,:)=lsim(B,A,s(k,:),t)
end
y = 5 \times 1000
    0.0000
              0.0252
                        0.0500
                                  0.0742
                                             0.0979
                                                       0.1211
                                                                 0.1438
                                                                           0.1659 ...
   -0.0000
              0.0042
                        0.0083
                                  0.0123
                                             0.0163
                                                       0.0201
                                                                 0.0238
                                                                           0.0274
             -0.0025
                       -0.0050
                                  -0.0074
                                                      -0.0119
   -0.0000
                                            -0.0097
                                                                -0.0141
                                                                           -0.0161
              0.0018
                        0.0036
                                  0.0052
                                             0.0069
                                                       0.0084
                                                                 0.0099
   -0.0000
                                                                           0.0113
             -0.0014
                       -0.0028
                                  -0.0041
                                            -0.0053
                                                      -0.0064
                                                                -0.0075
                                                                           -0.0085
   -0.0000
v = 5 \times 1000
                        0.0500
                                  0.0742
                                             0.0979
                                                                           0.1659 · · ·
              0.0252
                                                       0.1211
                                                                 0.1438
    0.0000
                   0
                                       0
                                                  0
                                                            0
                                                                                 0
   -0.0000
             -0.0025
                       -0.0050
                                  -0.0074
                                            -0.0097
                                                      -0.0119
                                                                -0.0141
                                                                           -0.0161
   -0.0000
              0.0018
                        0.0036
                                  0.0052
                                             0.0069
                                                       0.0084
                                                                 0.0099
                                                                           0.0113
             -0.0014
   -0.0000
                       -0.0028
                                  -0.0041
                                            -0.0053
                                                      -0.0064
                                                                -0.0075
                                                                           -0.0085
y = 5 \times 1000
                        0.0500
                                  0.0742
                                             0.0979
                                                                 0.1438
                                                                           0.1659 ...
    0.0000
              0.0252
                                                       0.1211
                                                                                 a
                             0
                                       0
                                                  a
             -0.0084
                                            -0.0323
                                                      -0.0398
    0.0000
                       -0.0166
                                  -0.0246
                                                                -0.0470
                                                                           -0.0538
              0.0018
                        0.0036
                                  0.0052
                                             0.0069
                                                       0.0084
                                                                 0.0099
   -0.0000
                                                                           0.0113
             -0.0014
                       -0.0028
                                  -0.0041
                                            -0.0053
                                                      -0.0064
                                                                -0.0075
   -0.0000
                                                                           -0.0085
y = 5 \times 1000
    0.0000
              0.0252
                        0.0500
                                  0.0742
                                             0.0979
                                                       0.1211
                                                                 0.1438
                                                                           0.1659 ...
                                       0
                                                            0
    0.0000
             -0.0084
                       -0.0166
                                  -0.0246
                                            -0.0323
                                                      -0.0398
                                                                -0.0470
                                                                           -0.0538
                             0
                                       0
                                                  0
                                                            0
                                                                      0
                                                                                 0
   -0.0000
             -0.0014
                       -0.0028
                                  -0.0041
                                            -0.0053
                                                      -0.0064
                                                                -0.0075
                                                                           -0.0085
y = 5 \times 1000
              0.0252
                        0.0500
                                  0.0742
                                             0.0979
                                                                           0.1659 ...
    0.0000
                                                       0.1211
                                                                 0.1438
         0
                   0
                             0
                                       0
                                                  0
                                                            0
                                                                      a
                                                                                 0
                                            -0.0323
                                                      -0.0398
    0.0000
             -0.0084
                       -0.0166
                                  -0.0246
                                                                -0.0470
                                                                           -0.0538
         0
                   0
                             0
                                       0
                                                  0
                                                            0
                                                                      0
                                                                                 0
    0.0000
              0.0050
                        0.0099
                                  0.0146
                                             0.0191
                                                       0.0232
                                                                 0.0270
                                                                            0.0305
y4=lsim(B,A,sum(s),t);
plot(t,sum(y));grid;hold on
plot(t,y4,'r');legend('sum(y)','y4');
```

