```
% linear convolution
% circular convolution
% dft , idft
% power spectral density
% -Two sided
% -One sided
% DTMF
% butterworth IIR
% -LPF
% -HPF
% -BPF
% -BSF
%interpolation and decimation
%sinusoidal signal generation
%
clc
clear all
close all
x=input('enter x: ')
```

```
x = 1×4
     1     2     3     4
```

```
h=input('enter h: ')
```

```
h = 1×4
     2     1     2     1
```

```
N=length(x)
```

```
N = 4
```

```
M=length(h)
```

```
M = 4
```

```
l=N+M-1
```

```
l = 7
```

```
y=zeros(1,l)
```

```
y = 1×7
     0     0     0     0     0     0     0
```

```
for n=1:l
    y(n)=0
    for k=max(n-M+1,1):min(n,N)
        y(n)=y(n)+x(n-k+1)*h(k)
    end
end
```

```
y = 1×7
```

```
     2     0     0     0     0     0     0
y = 1×7
     2     4     0     0     0     0     0
y = 1×7
     2     5     0     0     0     0     0
y = 1×7
     2     5     6     0     0     0     0
y = 1×7
     2     5     8     0     0     0     0
y = 1×7
     2     5    10     0     0     0     0
y = 1×7
     2     5    10     8     0     0     0
y = 1×7
     2     5    10    11     0     0     0
y = 1×7
     2     5    10    15     0     0     0
y = 1×7
     2     5    10    16     0     0     0
y = 1×7
     2     5    10    16     4     0     0
y = 1×7
     2     5    10    16    10     0     0
y = 1×7
     2     5    10    16    12     0     0
y = 1×7
     2     5    10    16    12     8     0
y = 1×7
     2     5    10    16    12    11     0
y = 1×7
     2     5    10    16    12    11     4
```

```
z=conv(x,h)
```

```
z = 1×7
     2     5    10    16    12    11     4
```

```
lc=ifft(fft(x,l).*fft(h,l))
```

```
lc = 1×7
    2.0000    5.0000   10.0000   16.0000   12.0000   11.0000    4.0000
```

```
clc
clear all
close all
x=input('enter x')
```

```
x = 1×4
     1     2     3     4
```

```
h=input('enter h')
```

```
h = 1×4
     2     1     2     1
```

```
l=max(length(x),length(h))
```

```
l = 4
```

```
N=length(x)
```

```
N = 4
```

```
M=length(h)
```

```
M = 4
```

```
y=zeros(1,l)
```

```
y = 1×4
     0     0     0     0
```

```
x=[x zeros(l-N)]
```

```
x = 1×4
     1     2     3     4
```

```
h=[h zeros(l-M)]
```

```
h = 1×4
     2     1     2     1
```

```
for n=1:l
    y(n)=0
    for k=1:l
        id=mod(n-k,N)+1
        y(n)=y(n)+x(id)*h(k)
    end
end
```

```
y = 1×4
     0     0     0     0
id = 1
y = 1×4
     2     0     0     0
id = 4
y = 1×4
     6     0     0     0
id = 3
y = 1×4
    12     0     0     0
id = 2
y = 1×4
    14     0     0     0
y = 1×4
    14     0     0     0
```

```
id = 2
y = 1×4
    14     4     0     0
id = 1
y = 1×4
    14     5     0     0
id = 4
y = 1×4
    14    13     0     0
id = 3
y = 1×4
    14    16     0     0
y = 1×4
    14    16     0     0
id = 3
y = 1×4
    14    16     6     0
id = 2
y = 1×4
    14    16     8     0
id = 1
y = 1×4
    14    16    10     0
id = 4
y = 1×4
    14    16    14     0
y = 1×4
    14    16    14     0
id = 4
y = 1×4
    14    16    14     8
id = 3
y = 1×4
    14    16    14    11
id = 2
y = 1×4
    14    16    14    15
id = 1
y = 1×4
    14    16    14    16
```

```
cc=cconv(x,h,l)
```

```
cc = 1×4
    14    16    14    16
```

```
z=ifft(fft(x).*fft(h))
```

```
z = 1×4
    14    16    14    16
```

```
%dft
clc
clear all
close all
x=input('enter x: ')
```

```
x = 1×4
     1     2     3     4
```

```
N=length(x)
```

```
N = 4
```

```
y=zeros(N,1)
```

```
y = 4×1
     0
     0
     0
     0
```

```
for n=0:N-1
    for k=0:N-1
        y(n+1)=y(n+1)+x(k+1)*exp(-1*1i*2*pi*n*k/N)
    end
end
```

```
y = 4×1
     1
     0
     0
     0
y = 4×1
     3
     0
     0
     0
y = 4×1
     6
     0
     0
     0
y = 4×1
    10
     0
     0
     0
y = 4×1
    10
     1
     0
     0
y = 4×1 complex
```

```
  10.0000 + 0.0000i
   1.0000 - 2.0000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 - 2.0000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
   1.0000 + 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
  -1.0000 - 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
   2.0000 + 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
  -2.0000 - 0.0000i
   0.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
  -2.0000 - 0.0000i
   1.0000 + 0.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
  -2.0000 - 0.0000i
   1.0000 + 2.0000i

y = 4×1 complex

  10.0000 + 0.0000i
  -2.0000 + 2.0000i
  -2.0000 - 0.0000i
  -2.0000 + 2.0000i

y = 4×1 complex
```

```
  10.0000 + 0.0000i
  -2.0000 + 2.0000i
  -2.0000 - 0.0000i
  -2.0000 - 2.0000i
```

```
z=fft(x)
```

```
z = 1×4 complex
  10.0000 + 0.0000i  -2.0000 + 2.0000i  -2.0000 + 0.0000i  -2.0000 - 2.0000i
```

```
%idft
clc
clear all
close all
x=input('enter x: ')
```

```
x = 1×4
     1     2     3     4
```

```
N=length(x)
```

```
N = 4
```

```
y=zeros(N,1)
```

```
y = 4×1
     0
     0
     0
     0
```

```
for n=0:N-1
    for k=0:N-1
        y(n+1)=y(n+1)+x(k+1)*exp(1i*2*pi*n*k/N)
    end
    y(n+1)=y(n+1)/N
end
```

```
y = 4×1
     1
     0
     0
     0
y = 4×1
     3
     0
     0
     0
y = 4×1
     6
     0
     0
     0
```

```
y = 4×1
    10
     0
     0
     0
y = 4×1
    2.5000
         0
         0
         0
y = 4×1
    2.5000
    1.0000
         0
         0
y = 4×1 complex
   2.5000 + 0.0000i
   1.0000 + 2.0000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
   2.5000 + 0.0000i
  -2.0000 + 2.0000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
   2.5000 + 0.0000i
  -2.0000 - 2.0000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
   0.0000 + 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
   1.0000 + 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -1.0000 + 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
   2.0000 - 0.0000i
   0.0000 + 0.0000i
y = 4×1 complex
```

```
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -2.0000 + 0.0000i
   0.0000 + 0.0000i
```

```
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -0.5000 + 0.0000i
   0.0000 + 0.0000i
```

```
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -0.5000 + 0.0000i
   1.0000 + 0.0000i
```

```
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -0.5000 + 0.0000i
   1.0000 - 2.0000i
```

```
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -0.5000 + 0.0000i
  -2.0000 - 2.0000i
```

```
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -0.5000 + 0.0000i
  -2.0000 + 2.0000i
```

```
y = 4×1 complex
   2.5000 + 0.0000i
  -0.5000 - 0.5000i
  -0.5000 + 0.0000i
  -0.5000 + 0.5000i
```

```
z=ifft(x)
```

```
z = 1×4 complex
   2.5000 + 0.0000i  -0.5000 - 0.5000i  -0.5000 + 0.0000i  -0.5000 + 0.5000i
```

```
%power spectral density two sides
clc
clear all
close all
fs=10000
```

```
fs = 10000
```

```
f1=500
```

```
f1 = 500
```

```
f2=2000
```

```
f2 = 2000
```

```
N=200
```

```
N = 200
```

```
t=0:N-1
```

```
t = 1×200
     0     1     2     3     4     5     6     7     8     9    10    11    12    13    14    15
```

```
x=sin(2*pi*f1*t/fs)+2*sin(2*pi*f2*t/fs)
```

```
x = 1×200
         0    2.2111    1.7634   -0.3666   -0.9511    1.0000    2.8532    1.9846   -0.5878   -1.59
```

```
xf=2*abs(fft(x))/N
```

```
xf = 1×200
    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.00
```

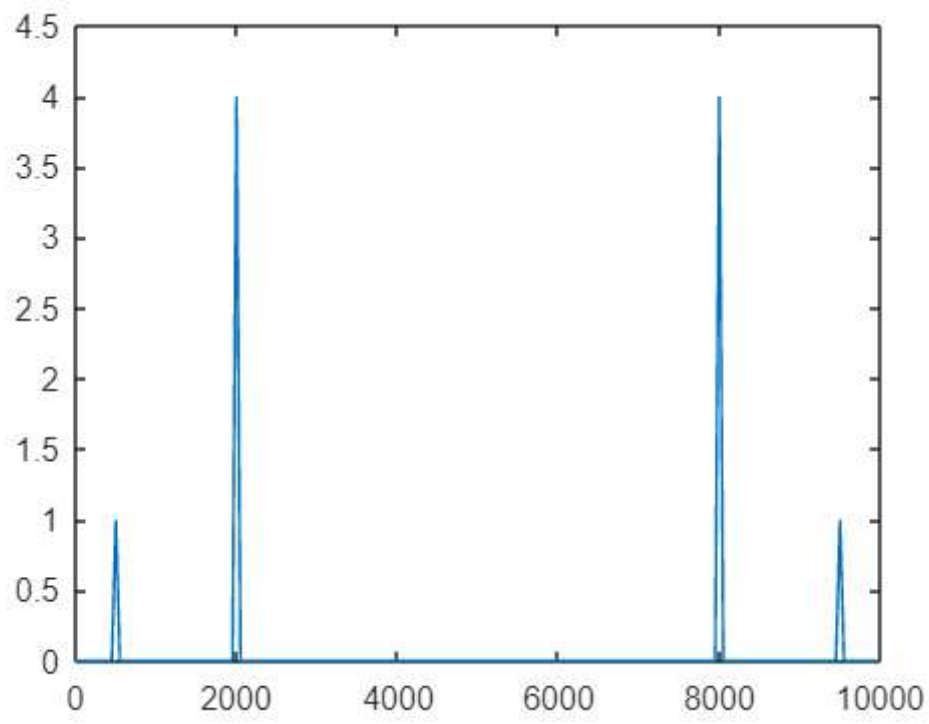
```
two_power=xf.*xf
```

```
two_power = 1×200
    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.00
```

```
f=(0:N-1)*fs/N
```

```
f = 1×200
           0          50         100         150         200         250         300         350
```

```
plot(f,two_power)
```



```
%power spectral density one sided
clc
clear all
close all
fs=10000
```

```
fs = 10000
```

```
f1=500
```

```
f1 = 500
```

```
f2=2000
```

```
f2 = 2000
```

```
N=200
```

```
N = 200
```

```
t=0:N-1
```

```
t = 1×200
     0     1     2     3     4     5     6     7     8     9    10    11    12    13    14    15
```

```
x=sin(2*pi*f1*t/fs)+2*sin(2*pi*f2*t/fs)
```

```
x = 1×200
         0    2.2111    1.7634   -0.3666   -0.9511    1.0000    2.8532    1.9846   -0.5878   -1.59
```

```
xf=abs(fft(x))/N
```

```
xf = 1×200
    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.00
```

```
u=2*xf
```

```
u = 1×200
    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.00
```

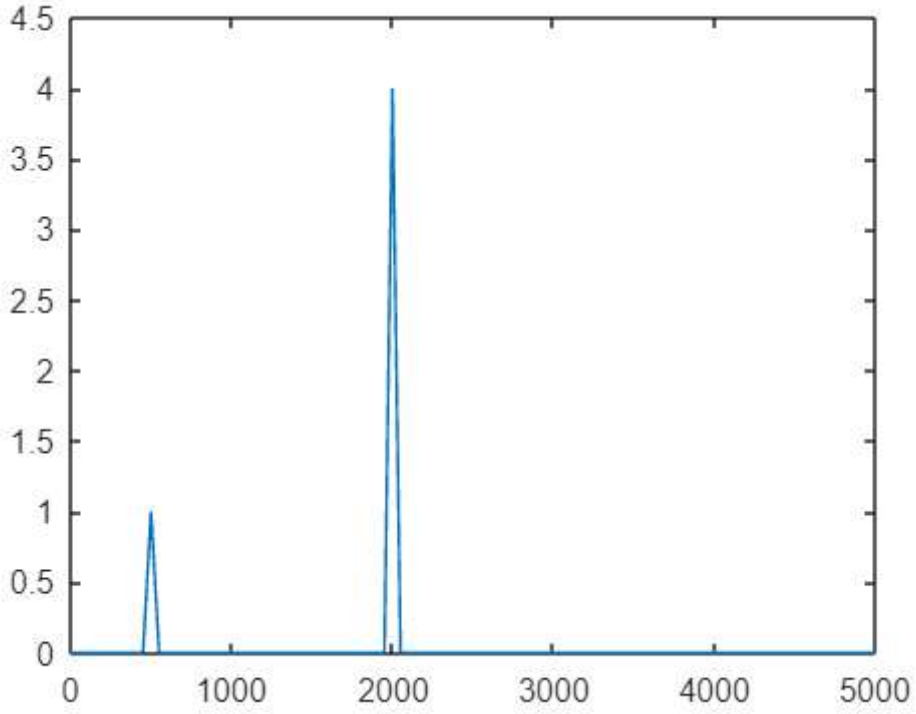
```
one_side=u.*u
```

```
one_side = 1×200
    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.0000    0.00
```

```
f=(0:(N-1)/2+1)*fs/N
```

```
f = 1×101
           0          50         100         150         200         250         300         350
```

```
plot(f,one_side(1:(N/2+1)))
```




```
%DTMF
clc
clear all
close all
dtmf_fq=[
    941,1336;%0
    697,1209;%1
    697,1336;%2
    770,1209;%3
    770,1336;%4
    770,1477;%5
    852,1209;%6
    852,1336;%7
    852,1477;%8
    941,1336;%9
    ]
```

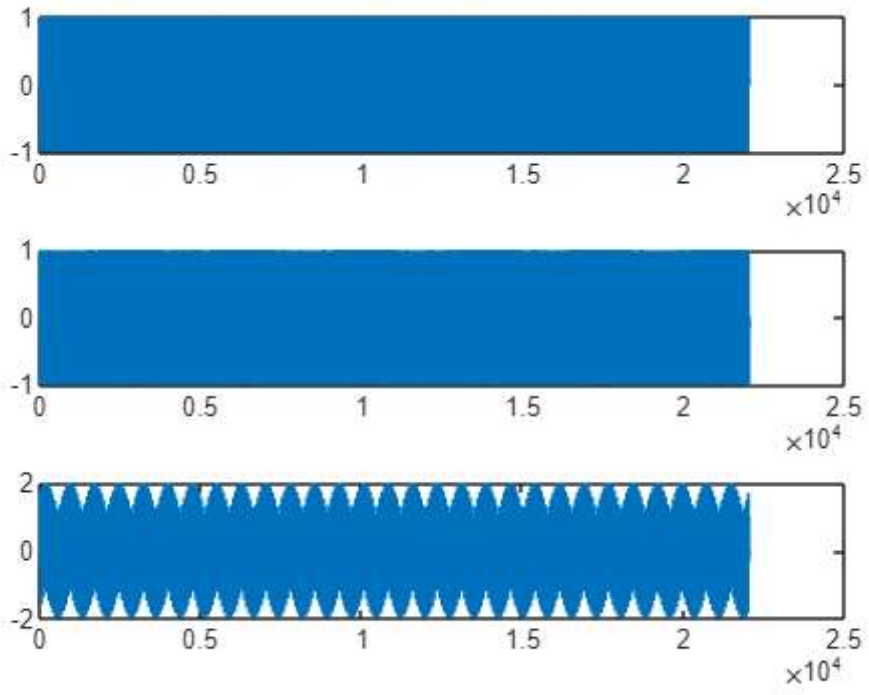
```
dtmf_fq = 10×2
         941        1336
         697        1209
         697        1336
         770        1209
         770        1336
         770        1477
         852        1209
         852        1336
         852        1477
         941        1336
```

```
digit=input('enter a digit (0-9) : ')
```

```
digit = 2
```

```
if digit>=0 && digit<=9
    fs=44100
    duration =0.5
    t=0:1/fs:duration
    tone1=sin(2*pi*dtmf_fq(digit+1,1)*t)
    tone2=sin(2*pi*dtmf_fq(digit+1,2)*t)
    tone=tone1+tone2
    sound(tone,fs)
    subplot(3,1,1)
    plot(tone1)
    subplot(3,1,2)
    plot(tone2)
    subplot(3,1,3)
    plot(tone)
else
    disp('invalid')
end
```

```
fs = 44100
duration = 0.5000
t = 1×22051
         0    0.0000    0.0000    0.0001    0.0001    0.0001    0.0001    0.0002    0.0002    0.00
tone1 = 1×22051
         0    0.0991    0.1973    0.2935    0.3869    0.4764    0.5612    0.6405    0.7135    0.77
tone2 = 1×22051
         0    0.1892    0.3716    0.5405    0.6899    0.8144    0.9095    0.9717    0.9988    0.98
tone = 1×22051
         0    0.2883    0.5689    0.8340    1.0768    1.2908    1.4707    1.6122    1.7123    1.76
```



```
%butterworth iir LPF
clc
clear all
close all
wp=input('enter pass band cutoff frequency: ')
```

```
wp = 1000
```

```
ws=input('enter stop band cutoff frequency: ')
```

```
ws = 3000
```

```
deltap=input('enter pass band ripple: ')
```

```
deltap = 3
```

```
deltas=input('enter stopband ripple: ')
```

```
deltas = 4
```

```
fs=10000
```

```
fs = 10000
```

```
omegap=2*tan(2*wp/fs)/sqrt(1+tan(2*wp/fs)^2)
```

```
omegap = 0.3973
```

```
omegas=2*tan(2*ws/fs)/sqrt(1+tan(2*ws/fs)^2)
```

```
omegas = 1.1293
```

```
num=log10(omegas/omegap)
```

```
num = 0.4536
```

```
delta=min(1/deltap^2-1,1/deltas^2-1)
```

```
delta = -0.9375
```

```
del=1/deltap^2-1
```

```
del = -0.8889
```

```
den=2*log10(delta/del)
```

```
den = 0.0462
```

```
fc=1000
```

```
fc = 1000
```

```
order=ceil(num/den)
```

```
order = 10
```

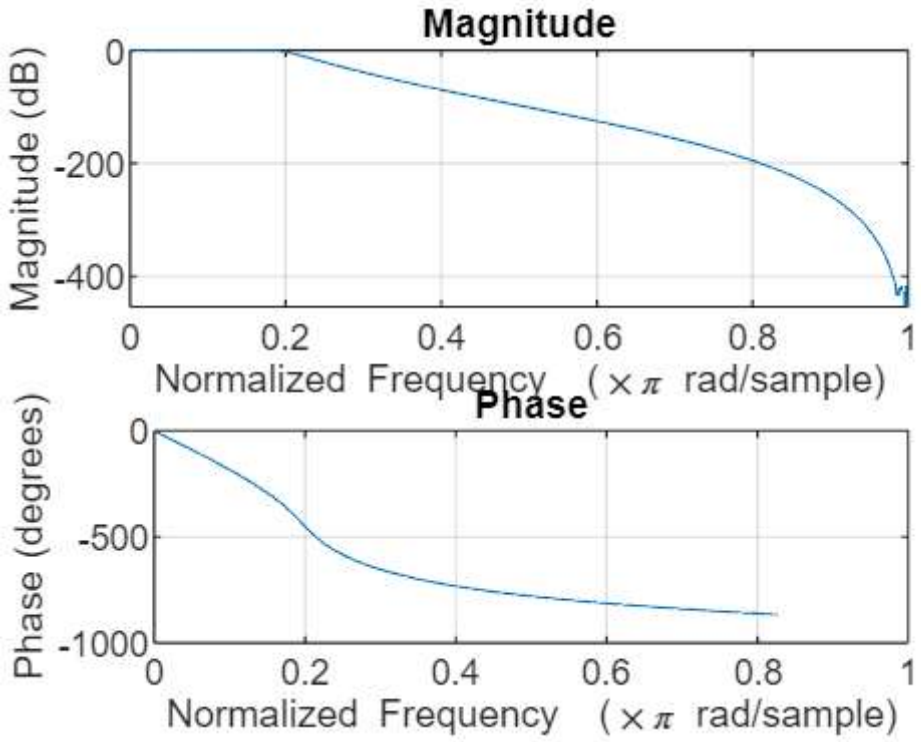
```
fc=1000
```

```
fc = 1000
```

```
[b,a]=butter(order,fc/(fs/2),"low")
```

```
b = 1×11

10^-3 ×

    0.0017    0.0168    0.0758    0.2020    0.3536    0.4243    0.3536    0.2020    0.0758    0.01

a = 1×11

    1.0000   -5.9876   16.6722  -28.2588   32.1598  -25.6017   14.4057   -5.6471    1.4737   -0.23
```

```
freqz(b,a,1000)
```




```
%HPF butterworth IIR
clc
clear all
close all
wp=input('enter pass band cutoff freq: ')
```

```
wp = 1000
```

```
ws=input('enter stop band cutoff freq: ')
```

```
ws = 2000
```

```
deltap=input('enter pass abnd ripple: ')
```

```
deltap = 3
```

```
deltas=input('enter stopband ripple: ')
```

```
deltas = 4
```

```
fs=10000
```

```
fs = 10000
```

```
omegap=2*tan(2*wp/fs)/sqrt(1+tan(2*wp/fs)^2)
```

```
omegap = 0.3973
```

```
omegas=2*tan(2*ws/fs)/sqrt(1+tan(2*ws/fs)^2)
```

```
omegas = 0.7788
```

```
den=log10(omegas/omegap)
```

```
den = 0.2923
```

```
delta=min(1/deltap^2-1,1/deltas^2-1)
```

```
delta = -0.9375
```

```
del=1/deltap^2-1
```

```
del = -0.8889
```

```
num=2*log10(delta/del)
```

```
num = 0.0462
```

```
order=ceil(num/den)
```

```
order = 1
```

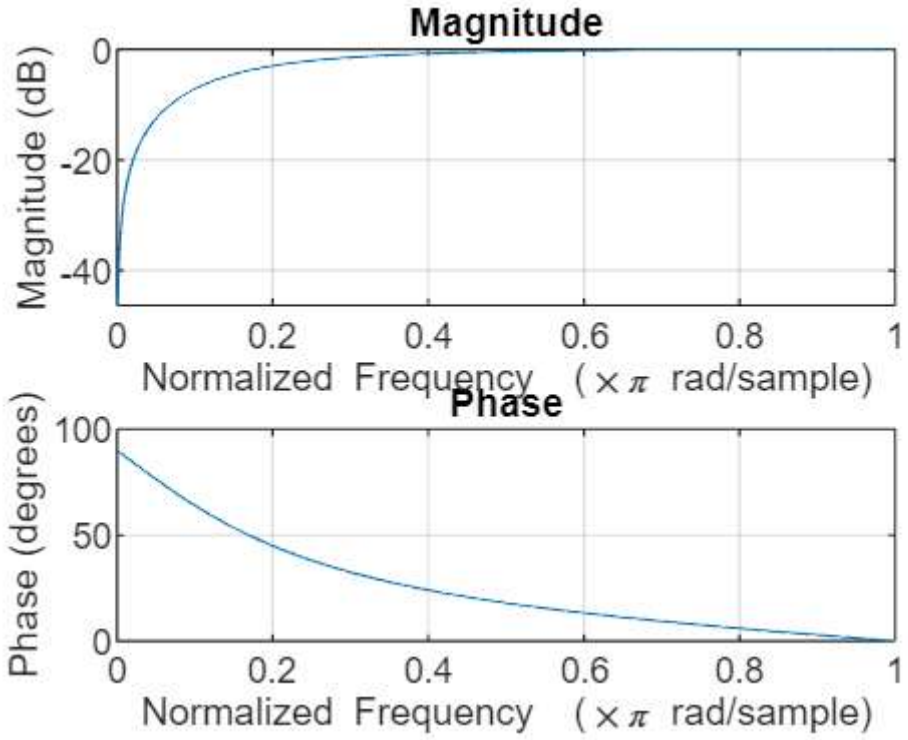
```
fc=1000
```

```
fc = 1000
```

```
[b,a]=butter(order,fc/(fs/2),'high')
```

```
b = 1×2
    0.7548   -0.7548
a = 1×2
    1.0000   -0.5095
```

```
freqz(b,a,1000)
```




```
%butterworth BandPass IIR
clc
clear all
close all
wp=input('enter pass band freq: ')
```

```
wp = 1000
```

```
ws=input('enter stop band freq: ')
```

```
ws = 3000
```

```
deltap=input('enter pass band ripple: ')
```

```
deltap = 3
```

```
deltas=input('enter stopband ripple: ')
```

```
deltas = 4
```

```
wp1=input('enter pass band freq1: ')
```

```
wp1 = 6000
```

```
ws1=input('enter stop band freq-1: ')
```

```
ws1 = 8000
```

```
fs=10000
```

```
fs = 10000
```

```
omegap1=2*tan(2*wp/fs)/sqrt(1+tan(2*wp/fs)^2)
```

```
omegap1 = 0.3973
```

```
omegas1=2*tan(2*ws/fs)/sqrt(1+tan(2*ws/fs)^2)
```

```
omegas1 = 1.1293
```

```
omegap2=2*tan(2*wp1/fs)/sqrt(1+tan(2*wp1/fs)^2)
```

```
omegap2 = 1.8641
```

```
omegas2=2*tan(2*ws1/fs)/sqrt(1+tan(2*ws1/fs)^2)
```

```
omegas2 = -1.9991
```

```
den=log10(omegas1*omegas2/omegap1*omegap2)
```

```
den = 1.0250 + 1.3644i
```

```
delta=min(1/deltap^2-1,1/deltas^2-1)
```

```
delta = -0.9375
```

```
del=1/deltap^2-1
```

```
del = -0.8889
```

```
num=2*log10(delta/del)
```

```
num = 0.0462
```

```
order=ceil(num/den)
```

```
order = 1
```

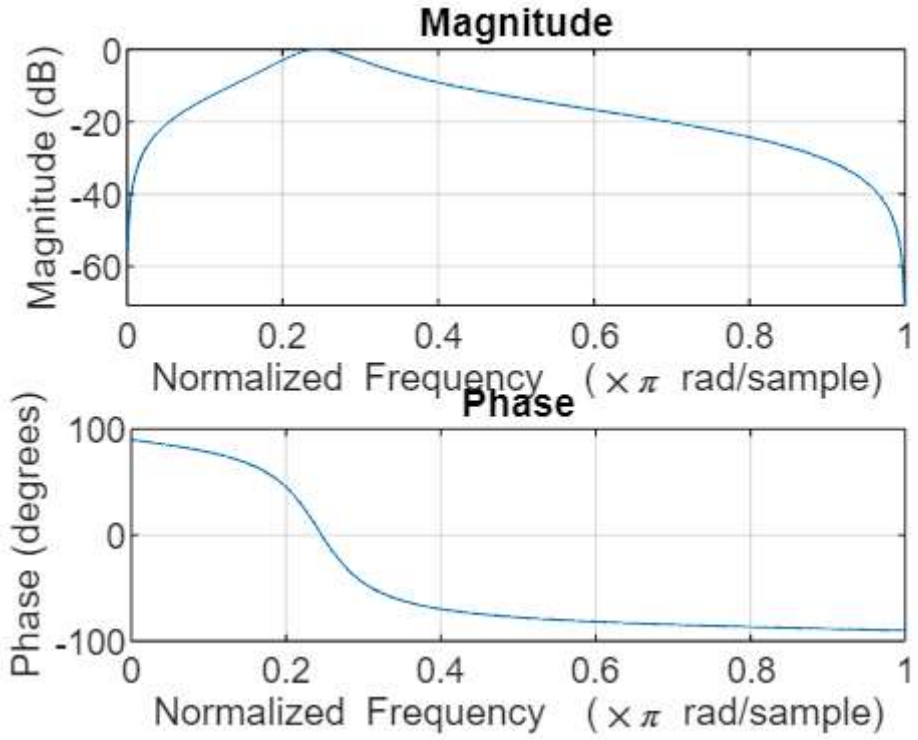
```
fc=1000
```

```
fc = 1000
```

```
[b,a]=butter(order,[fc/(fs/2),fc/(fs/2)+0.1],'bandpass')
```

```
b = 1×3
    0.1367         0   -0.1367
a = 1×3
    1.0000   -1.2361    0.7265
```

```
freqz(b,a,1000)
```




```
%butterworth BandStop IIR
clc
clear all
close all
wp=input('enter pass band frequency: ')
```

```
wp = 3000
```

```
ws=input('enter stop band frequency: ')
```

```
ws = 4000
```

```
wp1=input('enter pass band freq-1: ')
```

```
wp1 = 5000
```

```
ws1=input('enter stop band freq-1: ')
```

```
ws1 = 7000
```

```
deltap=input('enter pass abnd ripple: ')
```

```
deltap = 4
```

```
deltas=input('enter stopband ripple: ')
```

```
deltas = 7
```

```
fs=10000
```

```
fs = 10000
```

```
omegap=2*tan(2*wp/fs)/sqrt(1+tan(2*wp/fs)^2)
```

```
omegap = 1.1293
```

```
omegas=2*tan(2*ws/fs)/sqrt(1+tan(2*ws/fs)^2)
```

```
omegas = 1.4347
```

```
omegap1=2*tan(2*wp1/fs)/sqrt(1+tan(2*wp1/fs)^2)
```

```
omegap1 = 1.6829
```

```
omegas1=2*tan(2*ws1/fs)/sqrt(1+tan(2*ws1/fs)^2)
```

```
omegas1 = 1.9709
```

```
den=log10(omegas*omegas1/omegap1*omegap)
```

```
den = 0.2782
```

```
delta=min(1/deltap^2-1,1/deltas^2-1)
```

```
delta = -0.9796
```

```
del=1/deltap^2-1
```

```
del = -0.9375
```

```
num=2*log10(delta/del)
```

```
num = 0.0381
```

```
order=ceil(num/den)
```

```
order = 1
```

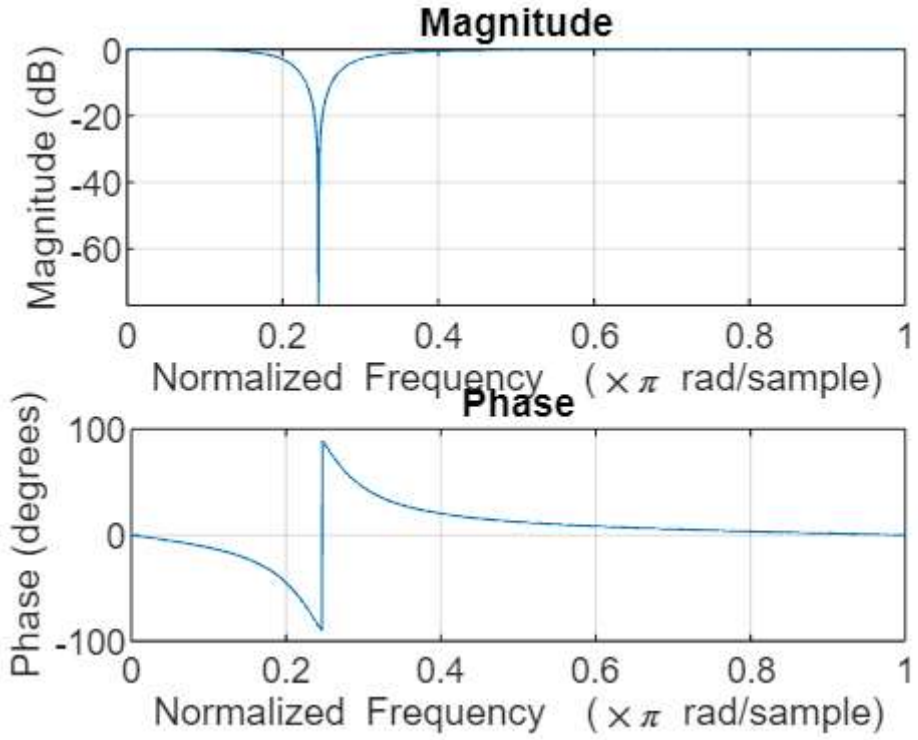
```
fc=1000
```

```
fc = 1000
```

```
[b,a]=butter(order,[fc/(fs/2),fc/(fs/2)+0.1],'stop')
```

```
b = 1×3
    0.8633   -1.2361    0.8633
a = 1×3
    1.0000   -1.2361    0.7265
```

```
freqz(b,a,1000)
```




```
%chebyshev LPF IIR
clc
clear all
close all
wp=input('enter pass band freq: ')
ws=input('enter stop band freq: ')
deltap=input('enter pass band ripple: ')
deltas=input('enter stop band ripple: ')
fs=10000
omegap=(2/fs)*tan(wp/2)
omegas=(2/fs)*tan(ws/2)
den=log10(omegas/omegap)
del=1/deltap^2-1
delta=1/deltas^2-1
num=2*log10(delta/del)
order=ceil(num/den)
re=-20*log10(1/deltap)
fc=1000
[b,a]=cheby1(order,re,fc/(fs/2),'low')
freqz(b,a,1000,fs)
```

```
%chebyshev HPF IIR
clc
clear all
close all
wp=input('enter pass band freq: ')
ws=input('enter stop band freq: ')
deltap=input('enter pass band ripple: ')
deltas=input('enter stop band ripple: ')
fs=10000
fc=1000
```

```
omegap=2/fs*tan(wp/2)
omegas=2/fs*tan(ws/2)
delta=(1/deltas^2-1)
del=1/deltap^2-1
num=2*log10(delta/del)
den=log10(omegas/omegap)
order=ceil(num/den)
re=-20*log(1/deltap)
[b,a]=cheby1(order,re,fc/(fs/2),'high')
freqz(b,a,1000,fs)
```

```
% Chebyshev BPF IIR
clc
clear all
close all

wp = input('Enter pass band freq: ');
ws = input('Enter stop band freq: ');
deltap = input('Enter pass band ripple: ');
deltas = input('Enter stop band ripple: ');
wp1 = input('Enter pass band freq-1: ');
ws1 = input('Enter stop band freq-1: ');
fs = 10000;
fc = 1000;

omegap = 2/fs * tan(wp/2);
omegas = 2/fs * tan(ws/2);
omegap1 = 2/fs * tan(wp1/2);
omegas1 = 2/fs * tan(ws1/2);
delta = 1/deltas^2 - 1;
del = 1/deltap^2 - 1;
num = 2 * log10(delta/del);
den = log10(omegas*omegas1/(omegap*omegap1));
re = -20 * log10(1/deltap);
order = ceil(num/den);
order=1
[b, a] = cheby1(order, re, [0.1, 0.2], 'bandpass');

freqz(b, a, 1000, fs);
```

```
%chebyshev BSF IIR
clc
clear all
close all
wp=input('enter pass band freq: ')
ws=input('enter stop band freq: ')
deltap=input('enter pass band riple: ')
deltas=input('enter stop band ripple: ')
wp1=input('enter pass band freq-1: ')
ws1=input('enter stop band freq-1: ')
fs=10000
fc=1000
omegap=2/fs*tan(wp/2)
```

```
omegas=2/fs*tan(ws/2)
omegap1=2/fs*tan(wp1/2)
omegas1=2/fs*tan(ws1/2)
den=log10(omegas*omegas1/omegap*omegap1)
delta=1/deltas^2-1
del=1/deltas^2-1
num=2*log10(delta/del)
order=ceil(num/den)
re=-20*log10(1/deltap)
order=1
[b,a]=cheby1(order,re,[0.1,0.2],'stop')
freqz(b,a,fc,fs)
```

```
%decimation
clc
clear all
close all
d=input('enter decimation factor: ')
```

```
d = 2
```

```
N=input('enter number of samples: ')
```

```
N = 200
```

```
u=0:N-1
```

```
u = 1×200
     0     1     2     3     4     5     6     7     8     9    10    11    12    13    14    15
```

```
x=sin(2*pi*0.46*u)+2*sin(2*pi*0.36*u)
```

```
x = 1×200
         0    1.7897   -2.4463    1.6481   -0.1081   -0.9511    0.6906    0.7316   -2.2739    2.76
```

```
subplot(2,1,1)
stem(u,x)
i=1
```

```
i = 1
```

```
w=1
```

```
w = 1
```

```
l=(N/d)
```

```
l = 100
```

```
c=zeros(1,l-1)
```

```
c = 1×99
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
for i=1:l
    y(i)=x(w)
    w=w+d
```

```
end
```

```
y = 0
w = 3
y = 1×2
         0   -2.4463

w = 5
y = 1×3
         0   -2.4463   -0.1081

w = 7
y = 1×4
         0   -2.4463   -0.1081    0.6906

w = 9
y = 1×5
         0   -2.4463   -0.1081    0.6906   -2.2739

w = 11
y = 1×6
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634

w = 13
y = 1×7
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843

w = 15
y = 1×8
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655

w = 17
y = 1×9
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255

w = 19
y = 1×10
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 21
y = 1×11
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 23
y = 1×12
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 25
y = 1×13
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 27
y = 1×14
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 29
y = 1×15
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 31
y = 1×16
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23

w = 33
y = 1×17
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
```

w = 35
y = 1×18

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 37
y = 1×19

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 39
y = 1×20

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 41
y = 1×21

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 43
y = 1×22

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 45
y = 1×23

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 47
y = 1×24

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 49
y = 1×25

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 51
y = 1×26

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 53
y = 1×27

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 55
y = 1×28

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 57
y = 1×29

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 59
y = 1×30

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 61
y = 1×31

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 63
y = 1×32

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 65
y = 1×33

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

w = 67
y = 1×34

0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -1.2255 1.23

```
w = 69
y = 1×35
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 71
y = 1×36
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 73
y = 1×37
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 75
y = 1×38
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 77
y = 1×39
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 79
y = 1×40
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 81
y = 1×41
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 83
y = 1×42
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 85
y = 1×43
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 87
y = 1×44
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 89
y = 1×45
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 91
y = 1×46
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 93
y = 1×47
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 95
y = 1×48
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -1.2255    1.23
w = 97
y = 1×49
          0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 99
y = 1×50
          0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 101
y = 1×51
          0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
```

w = 103
y = 1×52
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 105
y = 1×53
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 107
y = 1×54
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 109
y = 1×55
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 111
y = 1×56
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 113
y = 1×57
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 115
y = 1×58
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 117
y = 1×59
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 119
y = 1×60
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 121
y = 1×61
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 123
y = 1×62
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 125
y = 1×63
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 127
y = 1×64
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 129
y = 1×65
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 131
y = 1×66
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 133
y = 1×67
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 135
y = 1×68
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -

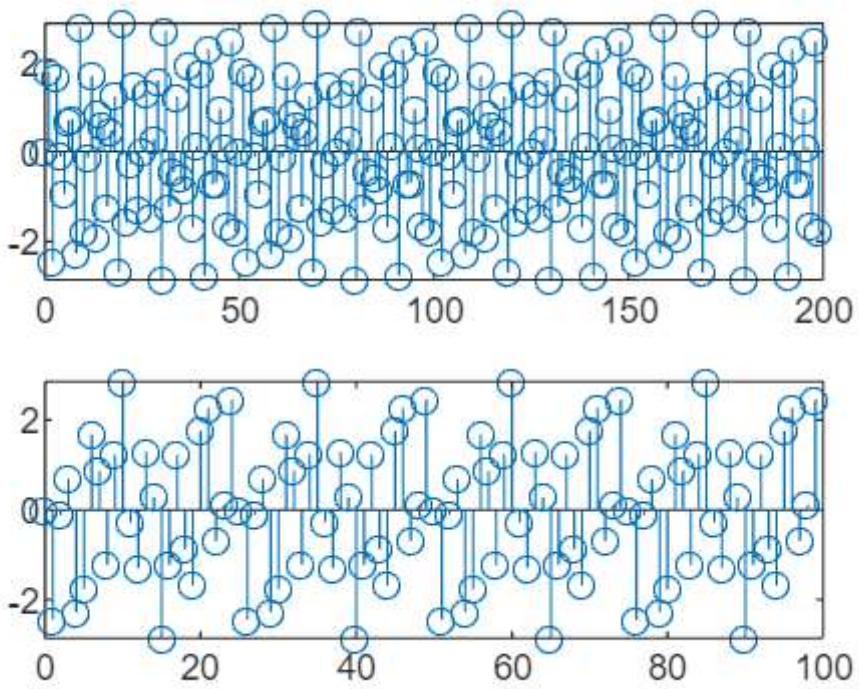
w = 137
y = 1×69
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 139
y = 1×70
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 141
y = 1×71
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 143
y = 1×72
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 145
y = 1×73
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 147
y = 1×74
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 149
y = 1×75
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 151
y = 1×76
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 153
y = 1×77
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 155
y = 1×78
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 157
y = 1×79
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 159
y = 1×80
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 161
y = 1×81
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 163
y = 1×82
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 165
y = 1×83
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 167
y = 1×84
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -
w = 169
y = 1×85
0 -2.4463 -0.1081 0.6906 -2.2739 -1.7634 1.6843 0.8655 -

```
w = 171
y = 1×86
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 173
y = 1×87
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 175
y = 1×88
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 177
y = 1×89
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 179
y = 1×90
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 181
y = 1×91
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 183
y = 1×92
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 185
y = 1×93
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 187
y = 1×94
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 189
y = 1×95
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 191
y = 1×96
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 193
y = 1×97
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 195
y = 1×98
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 197
y = 1×99
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 199
y = 1×100
         0   -2.4463   -0.1081    0.6906   -2.2739   -1.7634    1.6843    0.8655   -
w = 201
```

```
v=0:l-1
```

```
v = 1×100
     0     1     2     3     4     5     6     7     8     9    10    11    12    13
```

```
subplot(2,1,2)
stem(v,y)
```




```
%interpolation
clc
clear all
close all
N=input('enter number of samples: ')
```

```
N = 200
```

```
I=input('enter interpolation factor: ')
```

```
I = 2
```

```
u=0:N-1
```

```
u = 1×200
     0     1     2     3     4     5     6     7     8     9    10    11    12    13    14    15
```

```
x=sin(2*pi*0.4*u)+2*sin(2*pi*0.3*u)
```

```
x = 1×200
         0    2.4899   -2.1266   -0.2245    1.3143    0.0000   -1.3143    0.2245    2.1266   -2.48
```

```
subplot(2,1,1)
stem(u,x)
l=(N*I)-1
```

```
l = 399
```

```
y=zeros(1,l)
```

```
y = 1×399
```

```
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
i=1
```

```
i = 1
```

```
w=1
```

```
w = 1
```

```
for i=1:N
    y(w)=x(i)
    w=w+I
end
```

```
y = 1×399
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
w = 3
y = 1×399
         0         0    2.4899         0         0         0         0         0         0
w = 5
y = 1×399
         0         0    2.4899         0   -2.1266         0         0         0         0
w = 7
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0         0
w = 9
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 11
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 13
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 15
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 17
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 19
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 21
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 23
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 25
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
```

```
w = 27
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 29
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 31
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 33
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 35
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 37
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 39
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 41
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 43
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 45
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 47
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 49
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 51
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 53
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 55
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 57
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 59
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
```

```
w = 61
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 63
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 65
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 67
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 69
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 71
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 73
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 75
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 77
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 79
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 81
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 83
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 85
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 87
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 89
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 91
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
w = 93
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0    1.3143
```

```
w = 95
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 97
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 99
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 101
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 103
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 105
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 107
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 109
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 111
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 113
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 115
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 117
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 119
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 121
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 123
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 125
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 127
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
```

w = 129
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 131
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 133
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 135
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 137
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 139
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 141
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 143
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 145
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 147
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 149
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 151
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 153
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 155
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 157
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 159
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 161
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0

```
w = 163
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 165
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 167
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 169
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 171
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 173
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 175
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 177
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 179
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 181
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 183
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 185
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 187
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 189
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 191
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 193
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 195
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
```

```
w = 197
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 199
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 201
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 203
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 205
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 207
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 209
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 211
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 213
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 215
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 217
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 219
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 221
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 223
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 225
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 227
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 229
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
```

```
w = 231
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 233
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 235
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 237
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 239
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 241
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 243
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 245
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 247
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 249
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 251
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 253
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 255
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 257
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 259
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 261
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
w = 263
y = 1×399
         0         0    2.4899         0   -2.1266         0   -0.2245         0
```

w = 265
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 267
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 269
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 271
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 273
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 275
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 277
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 279
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 281
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 283
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 285
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 287
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 289
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 291
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 293
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 295
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 297
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0

w = 299
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 301
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 303
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 305
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 307
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 309
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 311
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 313
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 315
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 317
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 319
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 321
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 323
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 325
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 327
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 329
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 331
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0

w = 333
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 335
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 337
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 339
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 341
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 343
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 345
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 347
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 349
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 351
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 353
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 355
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 357
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 359
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 361
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 363
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 365
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0

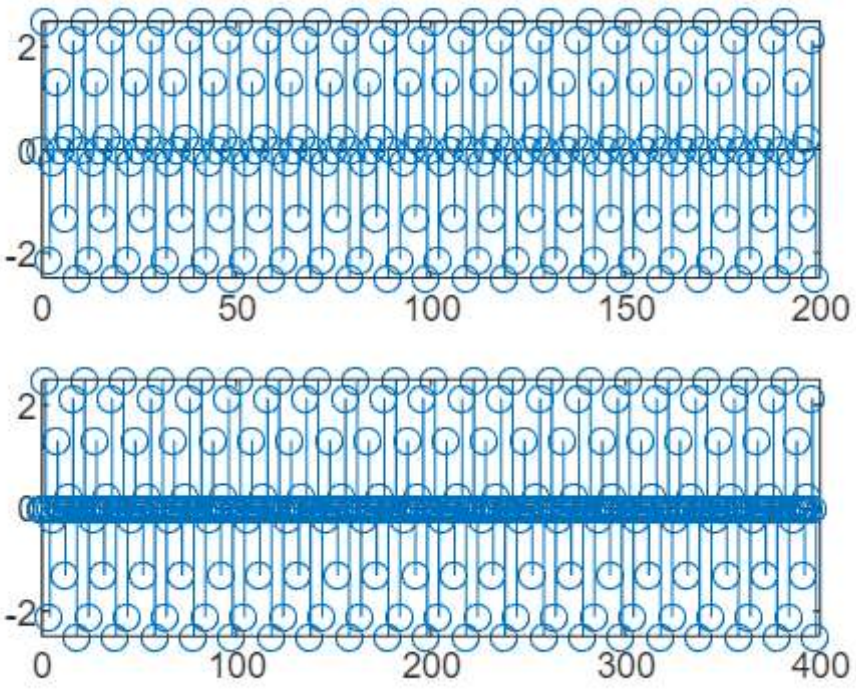
w = 367
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 369
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 371
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 373
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 375
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 377
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 379
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 381
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 383
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 385
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 387
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 389
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 391
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 393
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 395
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 397
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0
w = 399
y = 1×399
0 0 2.4899 0 -2.1266 0 -0.2245 0

```
w = 401
```

```
v=0:l-1
```

```
v = 1×399
     0     1     2     3     4     5     6     7     8     9    10    11    12    13
```

```
subplot(2,1,2)
stem(v,y)
```




```

```

```
clc
clear all
close all
t=0:0.01:10
```

```
t = 1×1001
         0    0.0100    0.0200    0.0300    0.0400    0.0500    0.0600    0.0700    0.0800    0.09
```

```
x=zeros(1,length(t))
```

```
x = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x(find(t==0))=0
```

```
x = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
w=input('enter w: ')
```

```
w = 0.1000
```

```
a=[1 -2*cos(w) 1]
```

```
a = 1×3
    1.0000   -1.9900    1.0000
```

```
b=[0 sin(w) 0]
```

```
b = 1×3
         0    0.0998         0
```

```
y=zeros(1,length(t))
```

```
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x1=0
```

```
x1 = 0
```

```
x2=0
```

```
x2 = 0
```

```
y1=0
```

```
y1 = 0
```

```
y2=0
```

```
y2 = 0
```

```
for n=1:length(x)
    y(n)=b(1)*x(n)+b(2)*x1+b(3)*x2-a(2)*y1-a(3)*y2
    x2=x1
    x1=x(n)
    y2=y1
    y1=y(n)
end
```

```
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
```

```
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
```

```
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
```

```
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
x2 = 0
x1 = 0
y2 = 0
y1 = 0
y = 1×1001
     0     0     0     0     0     0     0     0     0     0     0     0     0     0
```

```
x2 = 0
```

Warning: For increased performance, remaining outputs are not shown. Consider reducing the number

```
subplot(2,1,1)
plot(t,x)
subplot(2,1,2)
plot(t,y)
```