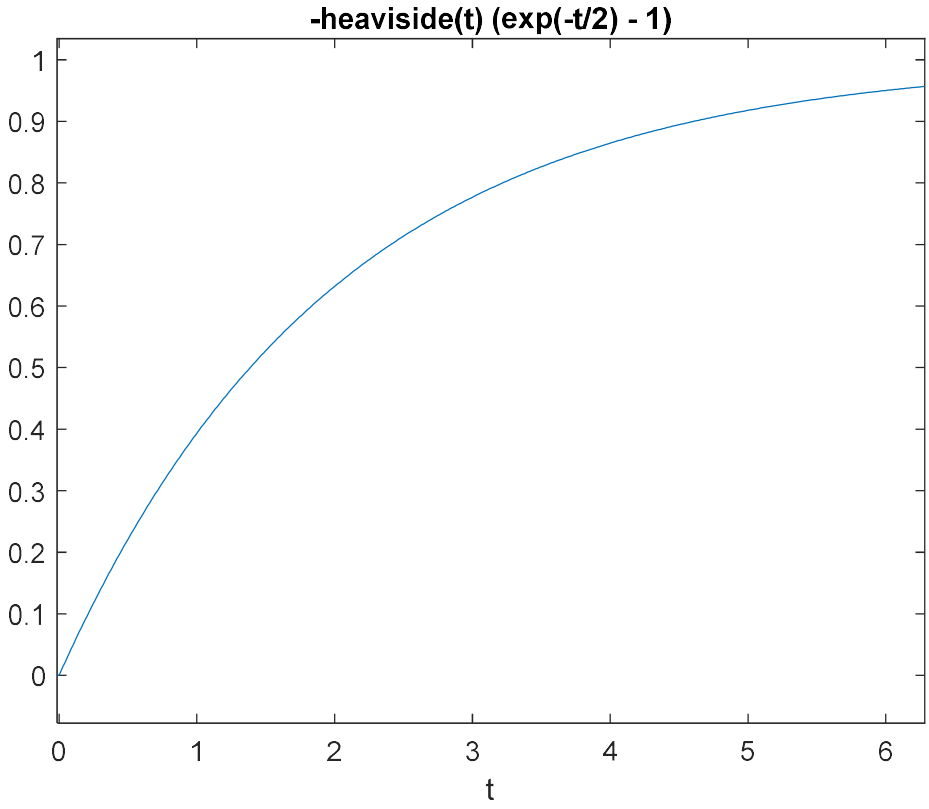
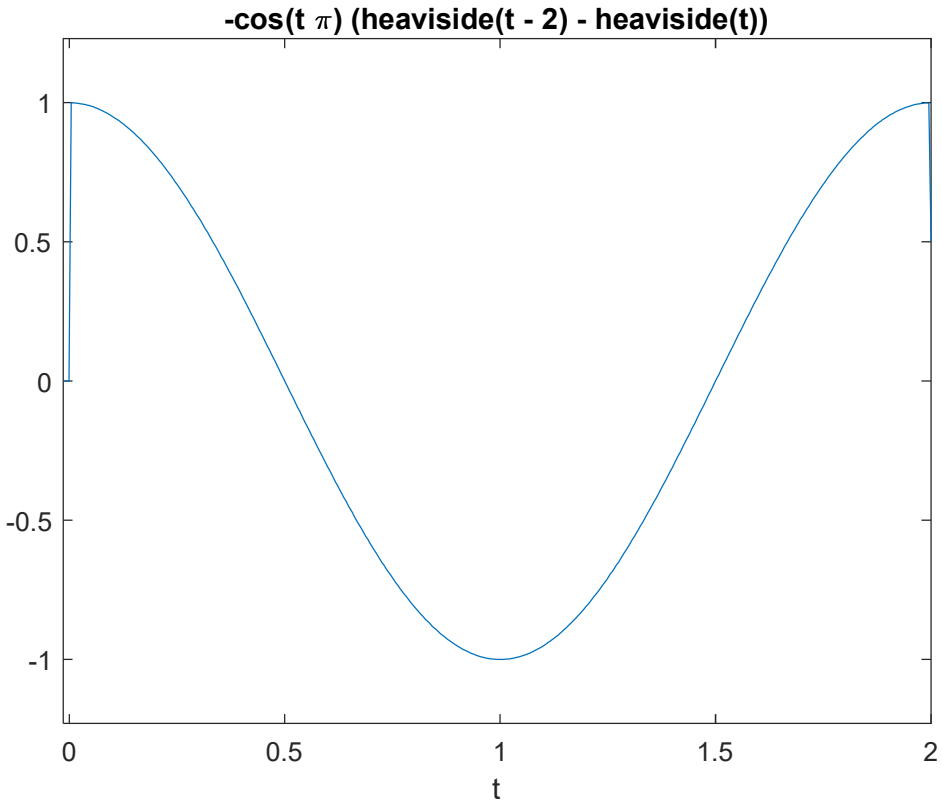
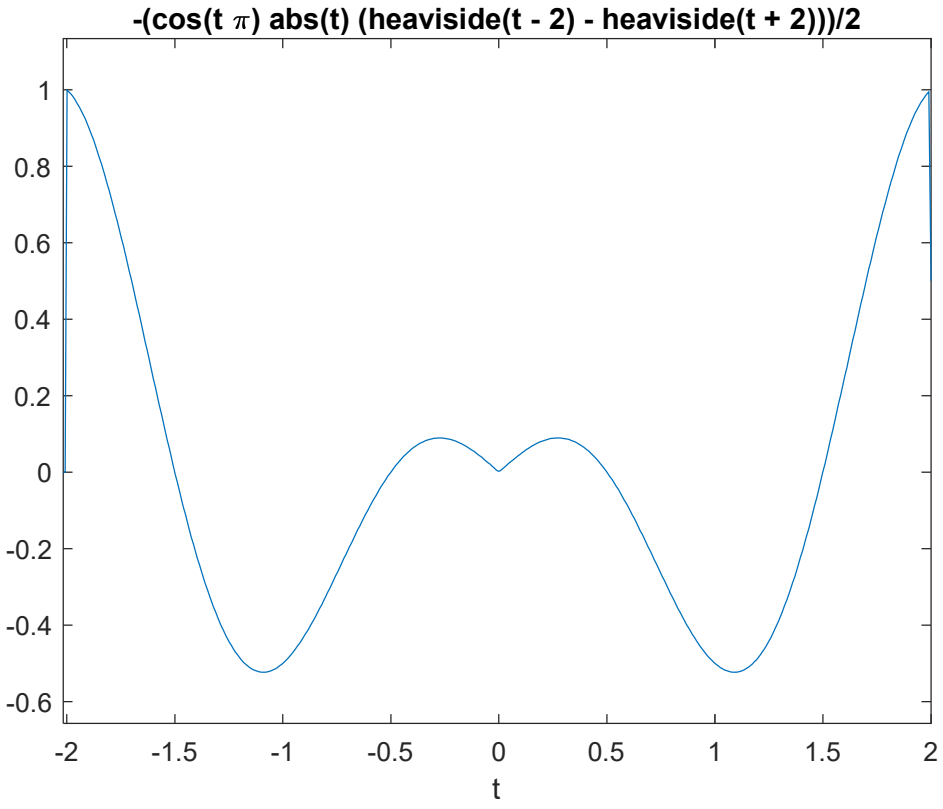
```
%Signal and System experiment.
%Using Matlab.
%1120183157 Binyang Han
%class05022011 2041
%2022/4/18 15:30 @room 904


%1-1
syms t
x=(1-exp(-0.5*t))*heaviside(t)
ezplot(x)
```



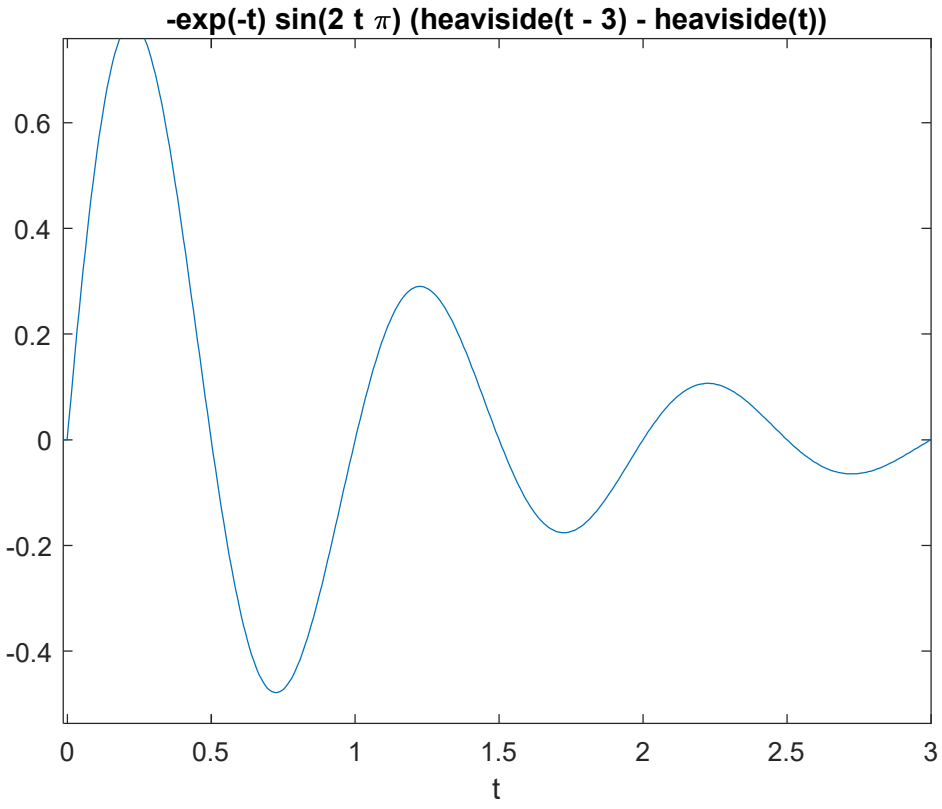
```
%1-2
syms t
x=cos(pi*t)*(heaviside(t)-heaviside(t-2))
ezplot(x)
```



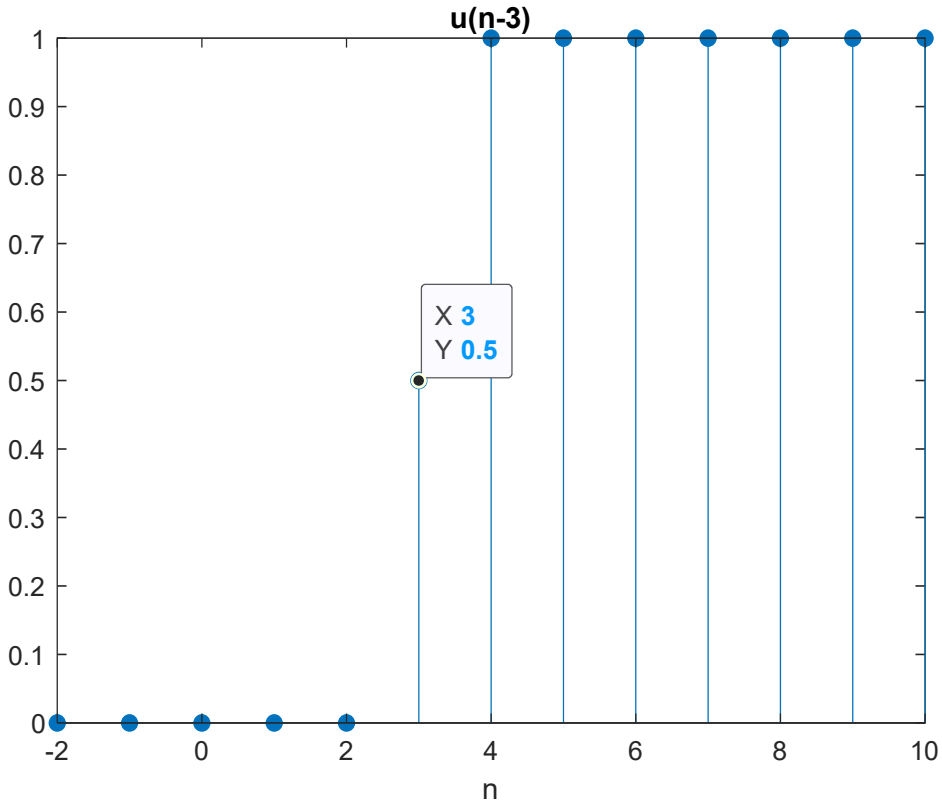
```
%1-3
syms t
x=abs(t)*0.5*cos(t*pi)*(heaviside(t+2)-heaviside(t-2))
ezplot(x)
```



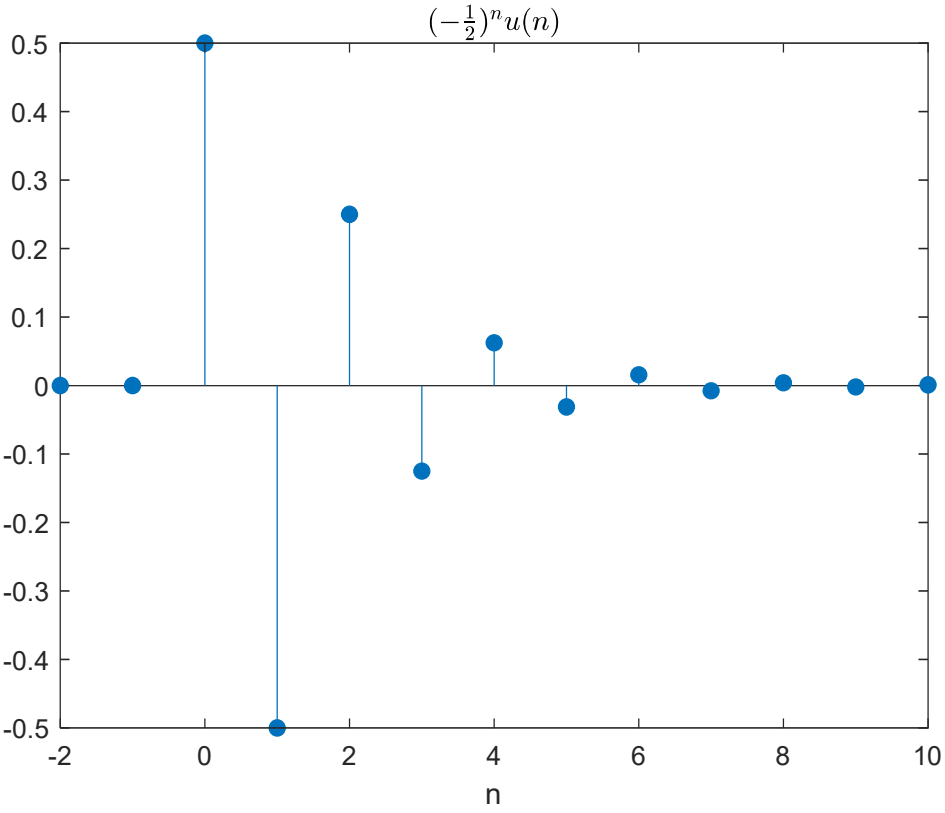
```
%1-4
syms t
x=exp(-t)*sin(2*pi*t)*(heaviside(t)-heaviside(t-3))
ezplot(x)
```



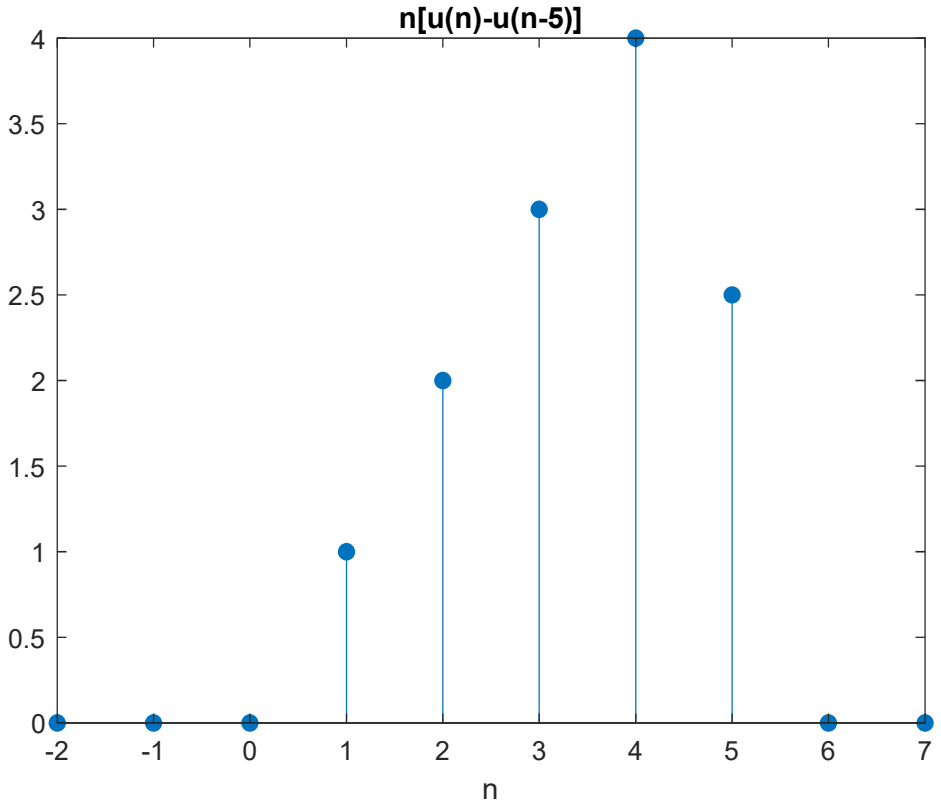
```
%2-1
n=-2:10
y=heaviside(n-3)
stem(n,y,'filled')
xlabel('n')
title('u(n-3)')
```



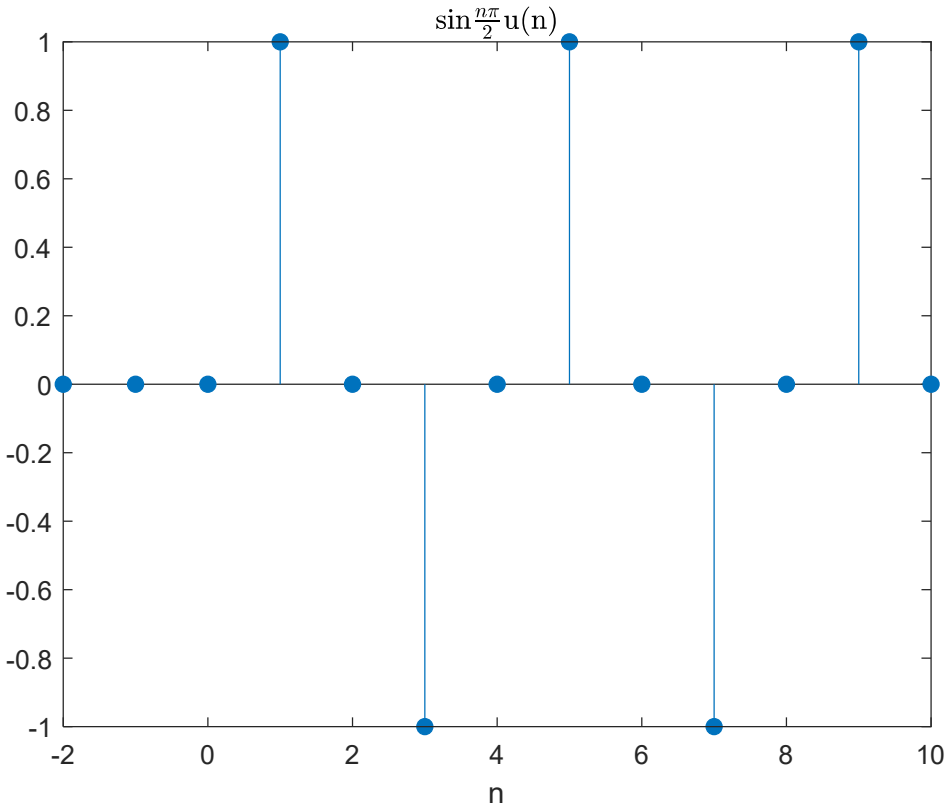
```
%2-2
n=-2:10
y=heaviside(n).*((-1/2).^n)
stem(n,y,'filled')
xlabel('n')
title('$(-\frac{1}{2})^{n}u(n)$','Interpreter','latex')
```



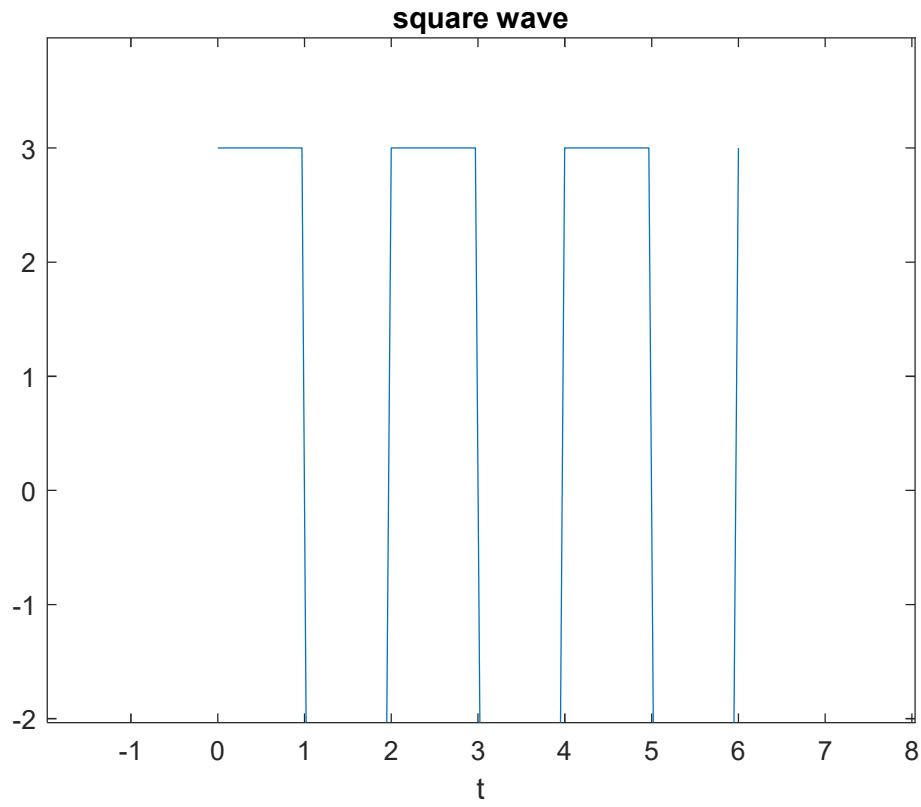
```
%2-3
n=-2:7
y=n.*(heaviside(n)-heaviside(n-5))
stem(n,y,'filled')
xlabel('n')
title('n[u(n)-u(n-5)]')
```



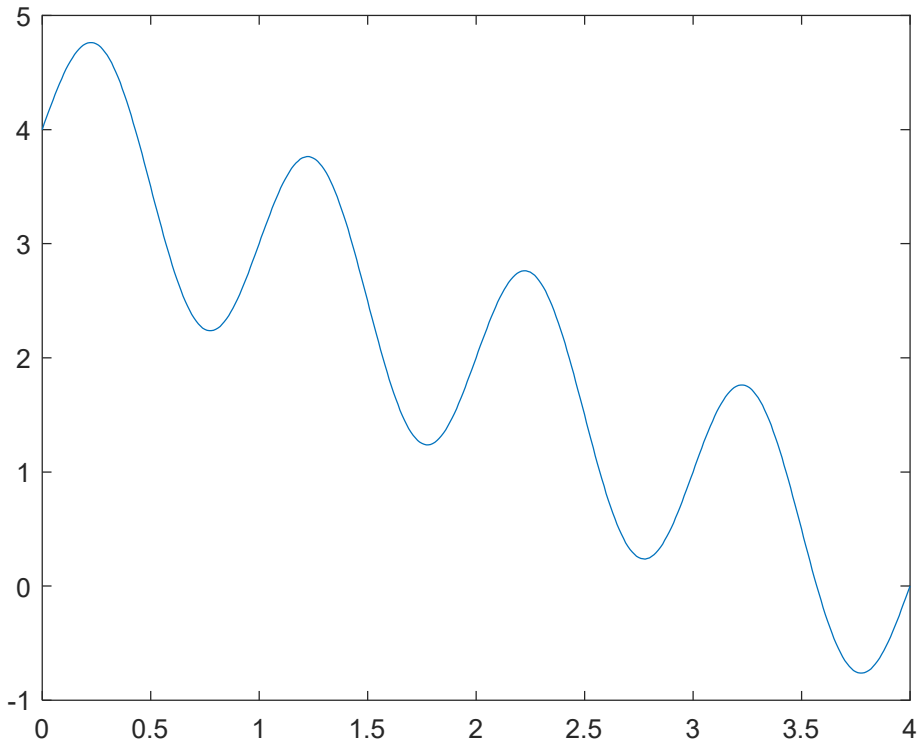
```
%2-4
n=-2:10
y=heaviside(n).*sin(n*pi/2)
stem(n,y,'filled')
xlabel('n')
title('sin$\frac{n\pi}{2}$u(n)','Interpreter','latex')
```



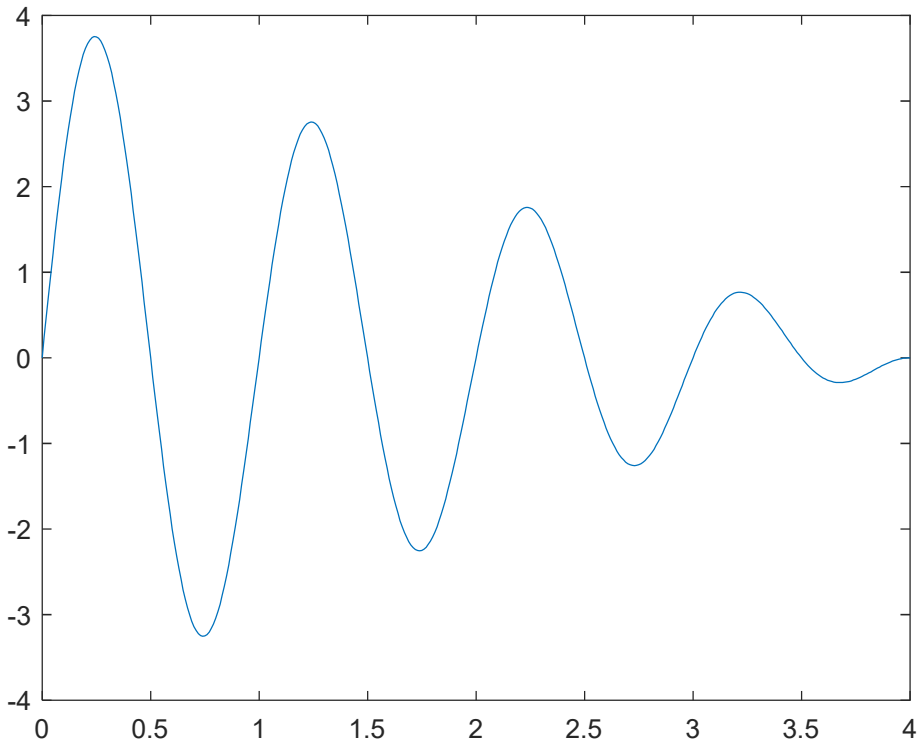
```
%3
t =linspace(0,6);
y = 3*square(t*pi);
plot(t,y)
axis([-2 8 -2 4])
xlabel('t')
title('square wave')
```



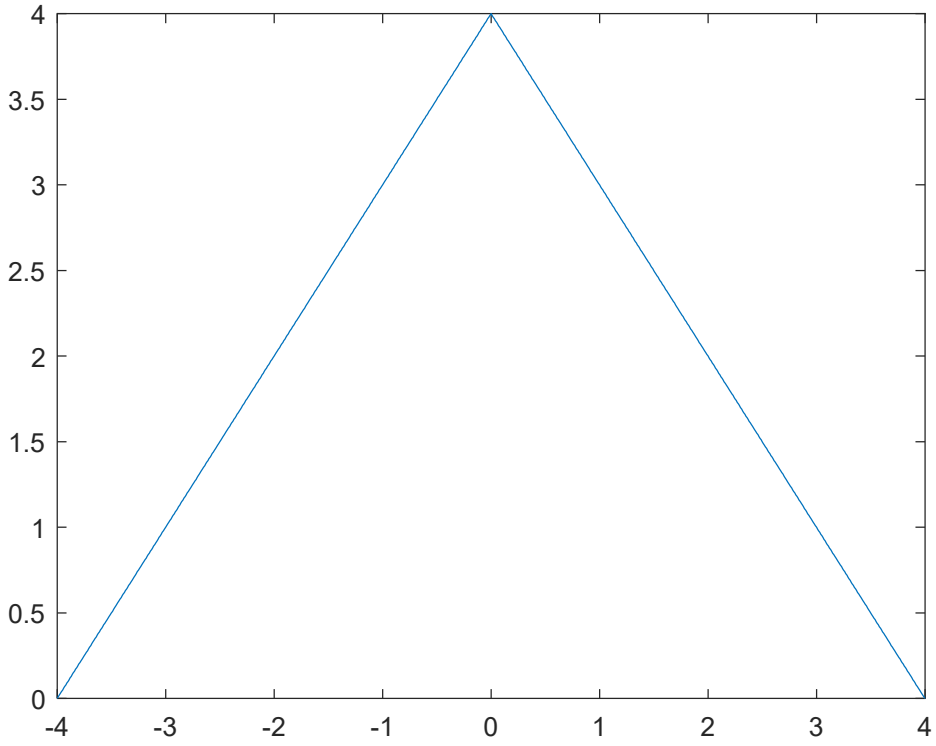
```
%4-1
x=0:0.01:4
y=4-x;
z=sin(2*pi*x)
plot(x,y+z)
```



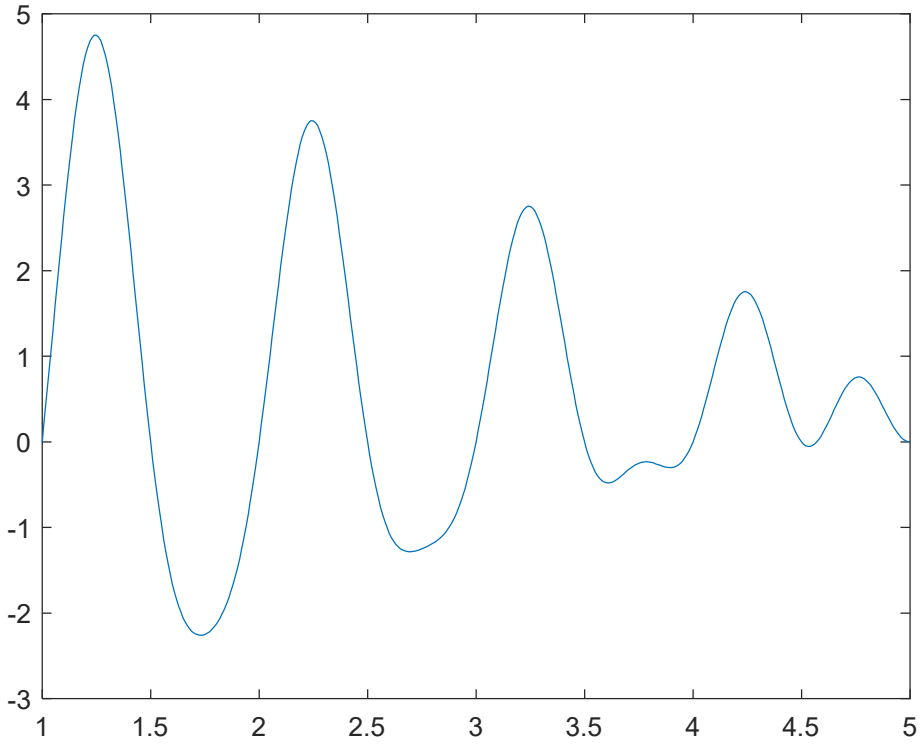
```
%4-2
x=0:0.01:4
y=4-x;
z=sin(2*pi*x)
plot(x,y.*z)
```



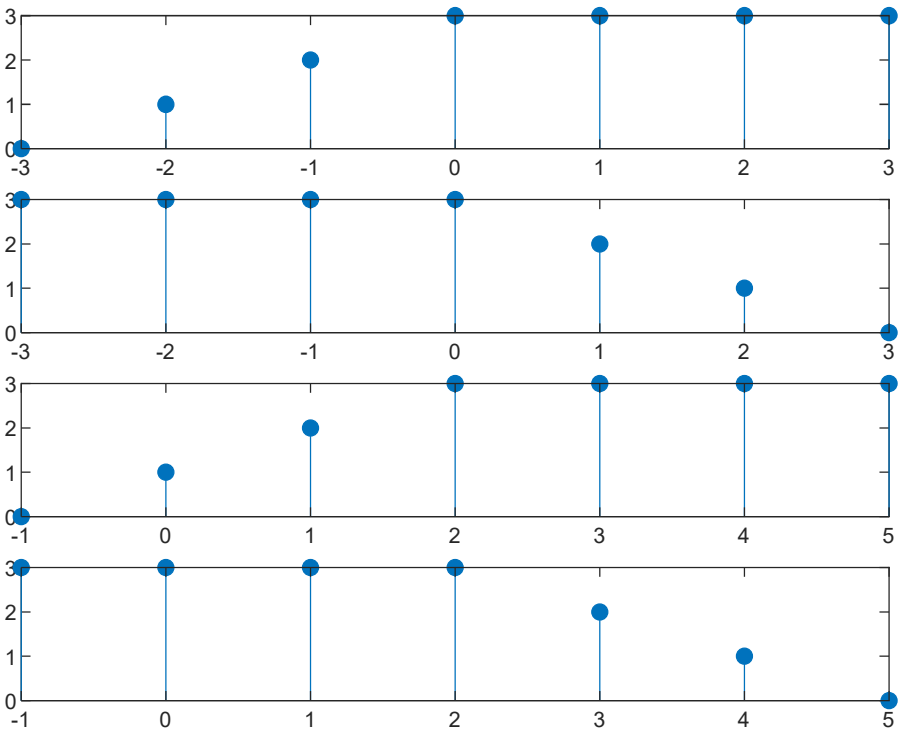
```
%4-3
x=-4:0.01:4
y=(4+x).*(x<0)+(4-x).*(x>=0)
plot(x,y)
```



```
%4-4
t=1:0.01:5
x1=5-t
x2=sin(2*pi*(t-1))
x3=x1+x2
x4=sin(2*pi*t)
plot(t,x3.*x4)
```



```
%5
x=-3:3
y=[0 1 2 3 3 3 3]
subplot(411)
stem(x,y,'filled')
subplot(412)
stem(-x,y,'filled')
subplot(413)
stem(x+2,y,'filled')
subplot(414)
stem(2-x,y,'filled')
```



```
%6
t=-20:0.01:20
x1=1+cos(pi*t/4-pi/3)+2*cos(pi*t/2-pi/4)+cos(2*pi*t)
x2=sin(t)+2*sin(pi*t)

n=-20:20
y1=2+3*sin(2*n*pi/3-pi/8)
y2=cos(n*pi/6)+sin(n*pi/3)+cos(n*pi/2)

subplot(411)
plot(t,x1)
subplot(412)
plot(t,x2)
subplot(413)
stem(n,y1,'filled')
subplot(414)
stem(n,y2,'filled')
```