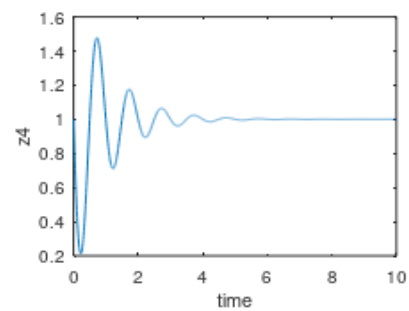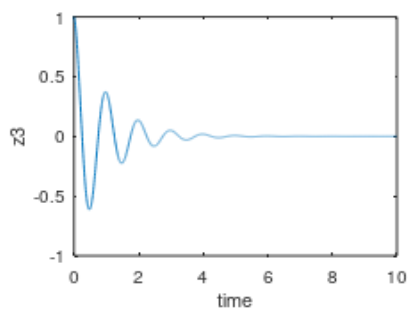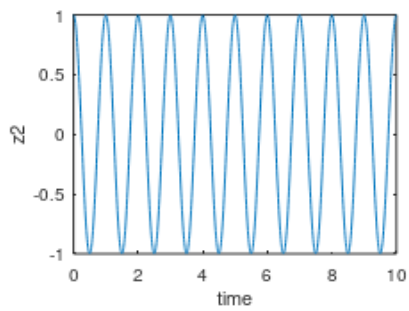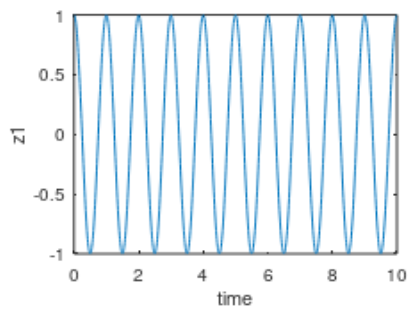## Ερώτημα 1ο

```
t=0:0.01:10;
y=sin(0.5*pi*t);
plot(t,y)
```
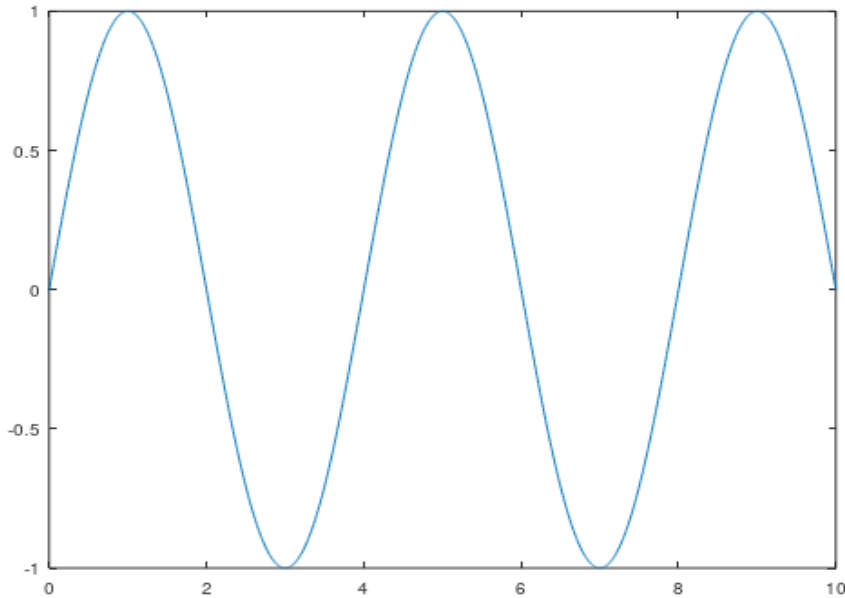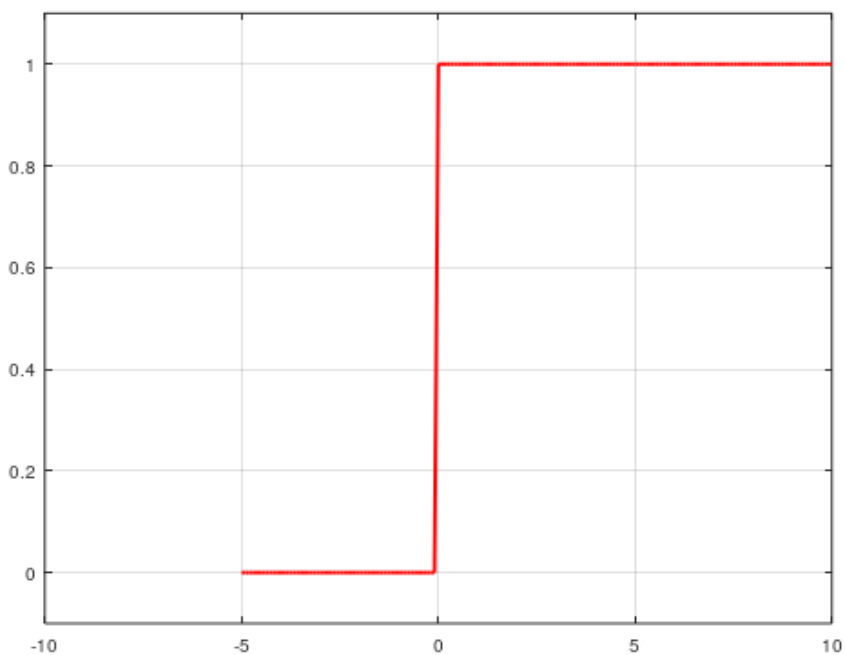

Ερώτημα 2ο

```
t=0:0.01:10;
z1=cos(2*pi*t);
z2=cos(2*pi*t);
z3=exp(-t).*cos(2*pi*t);
z4=1-exp(-t).*sin(2*pi*t);
subplot(221);
plot(t,z1);
xlabel('time');
ylabel('z1');
subplot(222);
plot(t,z2);
xlabel('time');
ylabel('z2');
subplot(223);
plot(t,z3);
xlabel('time');
ylabel('z3');
```

```
subplot(224);
plot(t,z4);
xlabel('time');
ylabel('z4');
```
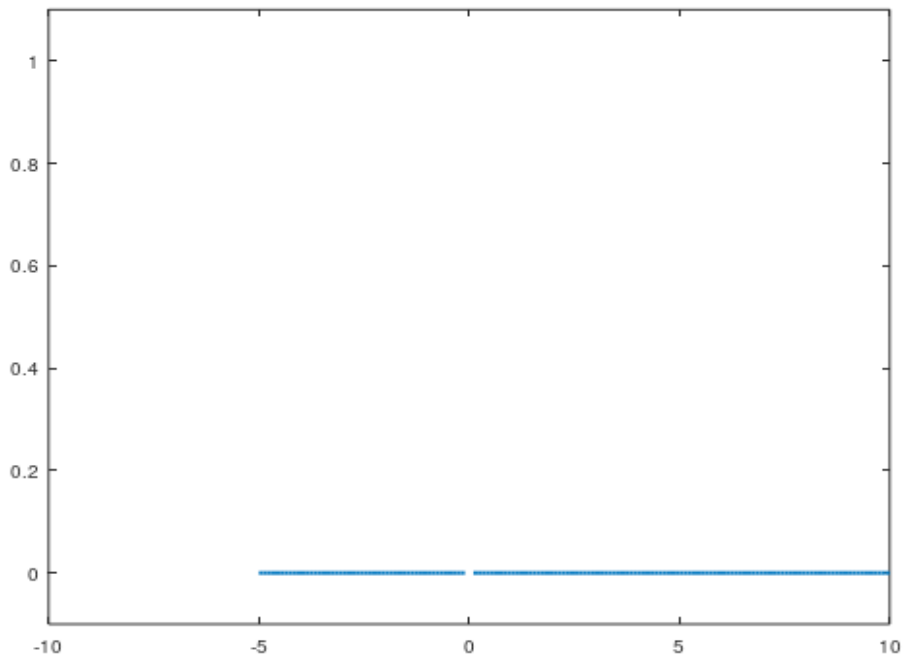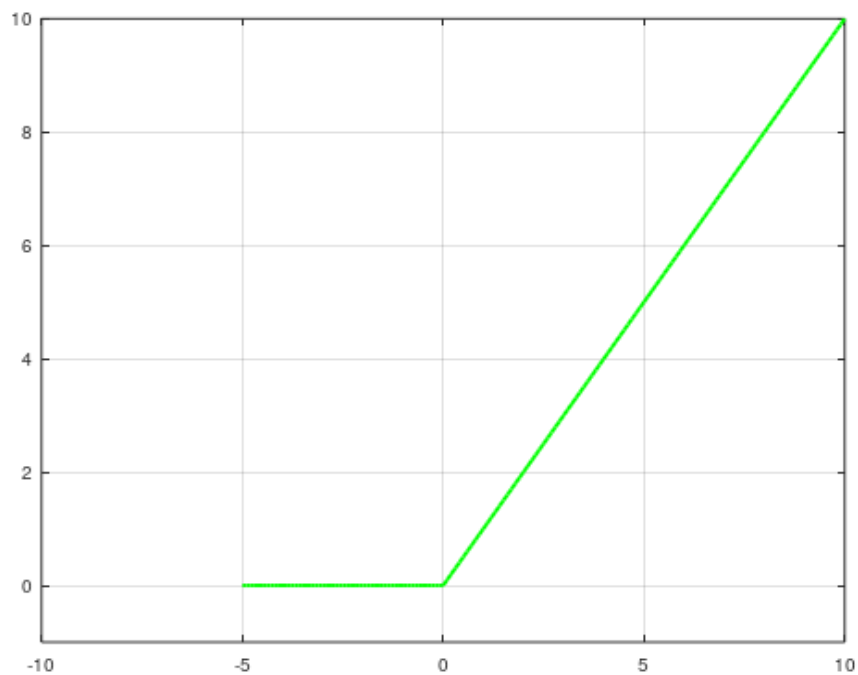

Ερώτημα 3ο

```
%unit step
t=-5:0.1:10;
u=[zeros(1,50),ones(1,101)];
plot(t,u,'r','LineWidth',2);
ylim([-0.1,1.1]);
grid
```
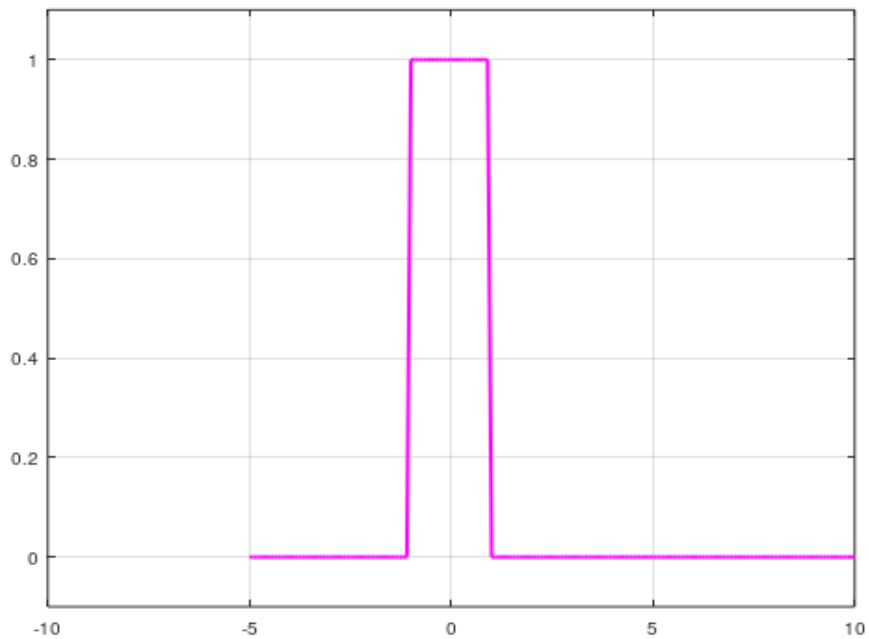
```
%dirac
delta=dirac(t);
plot(t,delta,'LineWidth',2);
ylim([-0.1,1.1]);
delta(1)
delta(51)    %d(0)
```



```
%ramba
ramb=t.*u;
plot(t,ramb,'g','LineWidth',2);
ylim([-1,10]);
grid
```
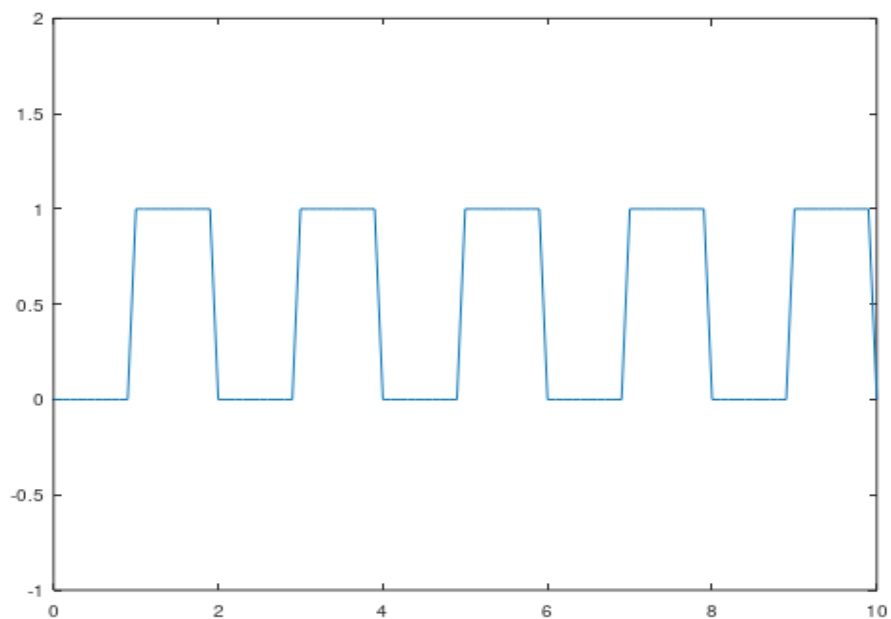
```
%square pulse
unit1=[zeros(1,40),ones(1,111)];
unit2=[zeros(1,60),ones(1,91)];
s_pulse=unit1-unit2;
plot(t,s_pulse,'m','LineWidth',2);
ylim([-0.1,1.1]);
grid
```
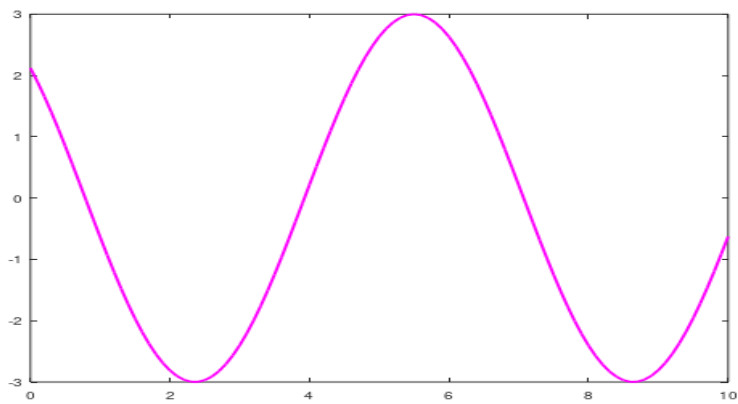

Ερώτημα 4ο

```
[u,t] = gensig('square',2,10,0.1);
plot(t,u)
axis([0 10 -1 2])
```
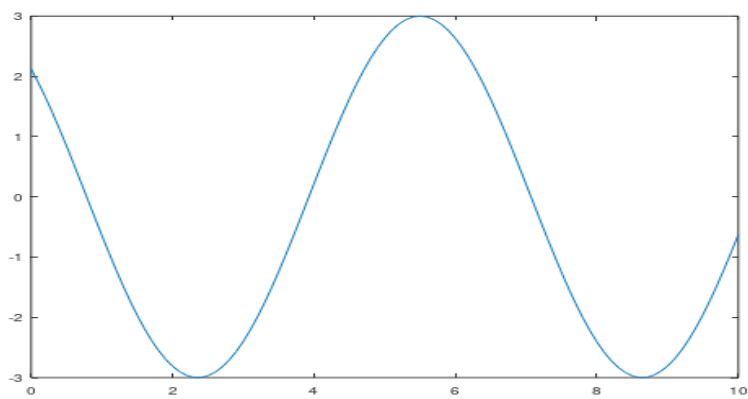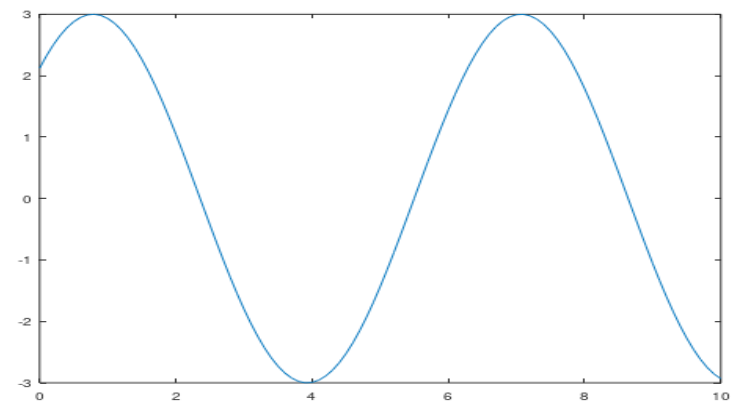
Ερώτημα 5ο

```
t=0:0.1:10;
u=[ones(1,101)];
z=3*exp(i*(t+(pi/4))).*u;
plot(t,z,'m','LineWidth',2);
```



```
R=real(z);
plot(t,R);
```



```
I=imag(z);
plot(t,I);
```

Ερώτημα 6ο

syms x
[n,d]=numden((1)/(x + 1) - (2)/(x - 1) + (2)/(x + 5))

```
Command Window
  >> syms x
  >> [n,d]=numden(1/(x+1) - 2/(x-1) + 2/(x+5))

  n =

  x^2 - 8*x - 17

  d =

  (x - 1)*(x + 1)*(x + 5)

fx >>
```

syms x
[n,d]=numden((1)/(x + 1) - (2)/(x - 1) + (2)/(x + 5))