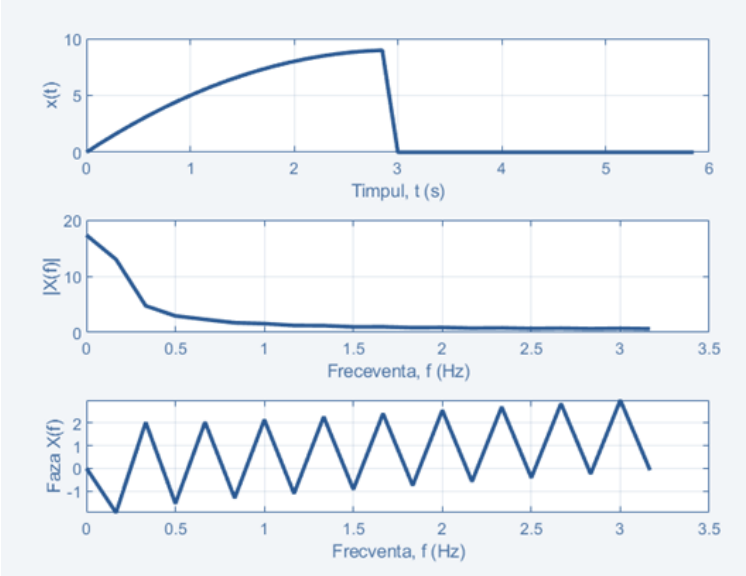
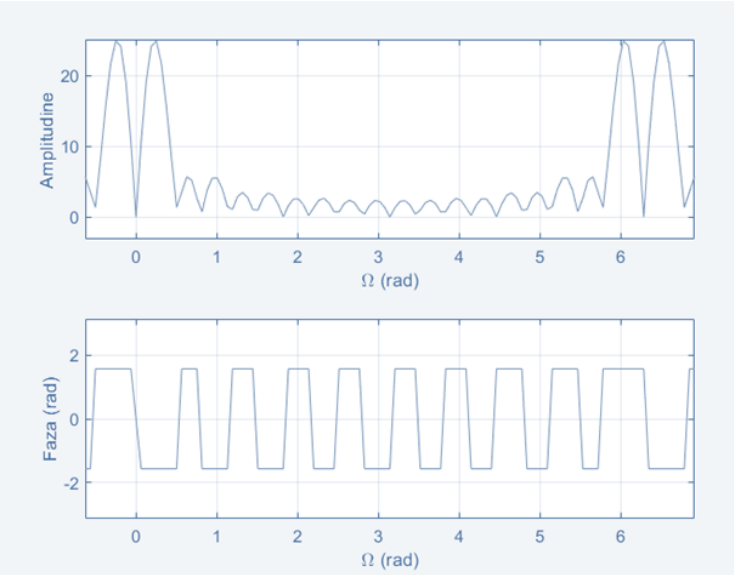
Tema 4.1

```
clear all ;

clf

N = 40 ;   secundeTs = 6/N ;
fs = 1/Ts ;
df = fs/N
n = [0:N-1]'
t = Ts*n ;
x = (9-(t-3).^2).*(t>0).*(t<3);
X = Ts*fft(x) ;
k = [0:N/2-1]';
%X = fftshift(Ts*fft(x)) ;
%k = [-N/2:N/2-1]';

Graficele
subplot(3,1,1)
p = plot(t,x,"k") ; set(p,"LineWidth",2) ; grid on ;
xlabel("Timpul, t (s)") ; ylabel("x(t)") ;subplot(3,1,2) ;
p = plot(k*df,abs(X(1:N/2)),"k") ; set(p, "LineWidth",2) ; grid on;
%p = plot(k*df,abs(X(1:N/2)),"k") ; set(p, "LineWidth",2) ; grid on;
xlabel("Freceventa, f (Hz)") ;ylabel("|X(f)|") ;subplot(3,1,3) ;
p = plot(k*df,angle(X(1:N/2)),"k") ; set(p,"LineWidth",2) ; grid on ;
%p = plot(k*df,angle(X(1:N/2)),"k") ; set(p,"LineWidth",2) ; grid on ;
xlabel( "Frecventa, f (Hz)") ; ylabel("Faza X(f)") ;
```



Tema 4.2

```
clear all;

n = linspace(0,10,11);
xn1 = (n>0).*(n<10).*(log(n+1));
puteri1=linspace(0,10,11);
n2 = linspace(-10,0,11);
xn2 = (n2>-10).*(n2<0).*(-1*log(-1*n2+1));
puteri2=linspace(-10,0,11);
Omega = [-0.1:0.01:1.1]*2*pi;
TFTD= sum(xn1*exp(-1i*puteri1'*Omega),1)+sum(xn2*exp(-1i*puteri2'*Omega),1
```



Grafic:

```
figure(1) subplot(211);
plot(Omega,abs(TFTD)); grid; axis([-0.2*pi,2.2*pi,-pi,8*pi]);
xlabel('\Omega (rad)'); ylabel('Amplitudine')

subplot(212) plot(Omega,angle(TFTD)); grid;
axis([-0.2*pi,2.2*pi,-pi,pi]);
xlabel('\Omega (rad)');
ylabel('Faza (rad)');
```

Tema 4.3

Transformata Laplace

```
syms x omega t;

x=cos(omega*t);

x=laplace(x);

x=s/(omega^2+s^2);
```

Tema 4.4

Transformata Laplace inversa

```
Syms X s x;

X=(5*s-1)/(s^3-3*s-2);

X=invlaplace(X);
```

Parametrii semnalului

```
Numaratorul=[5 , -1];

Numitorul=[1,  0, -3,  -2];

[r, p]=residue(numaratorul,  numitorul);
```