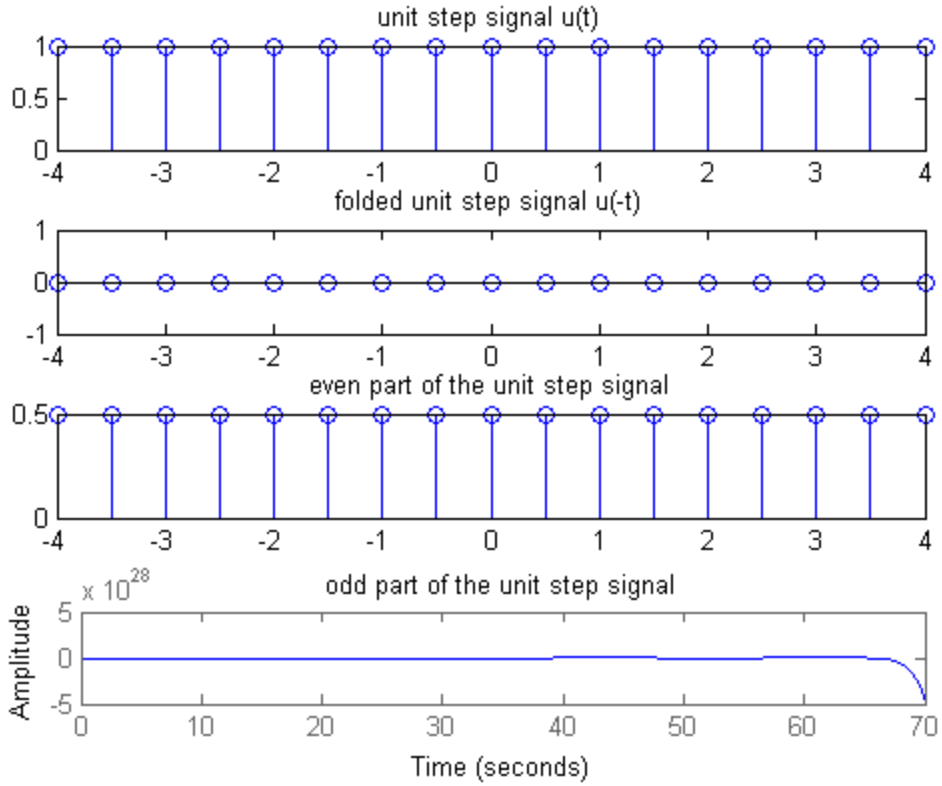
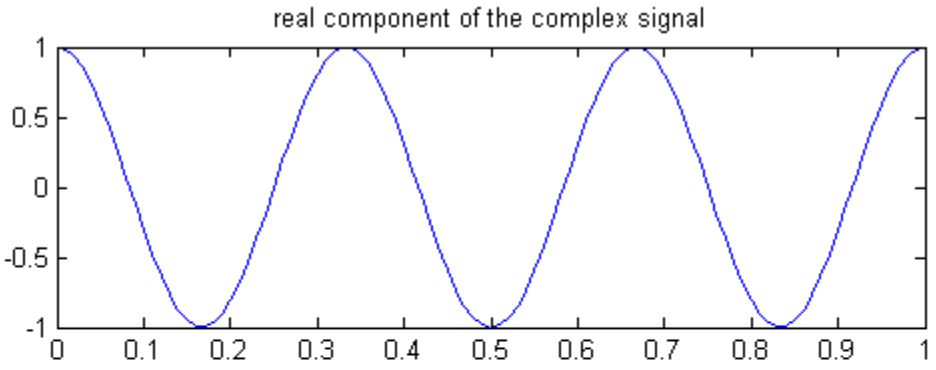
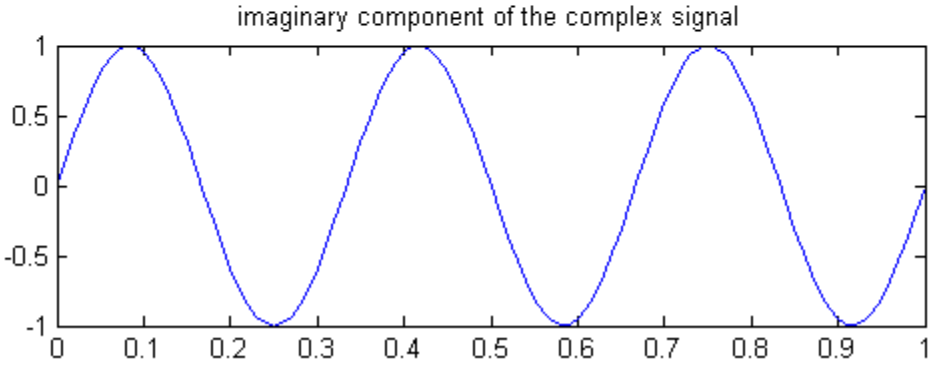
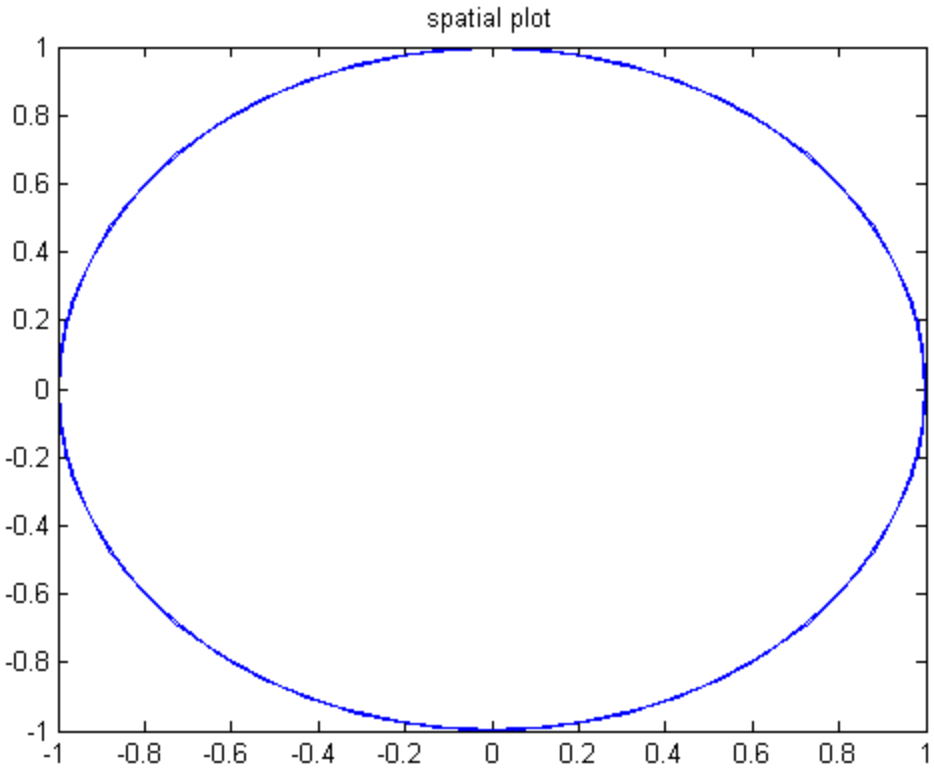
```
clc;
close all;
clear;
%1.even and odd parts of a signal
% define time
t=-4:0.5:4;
[m,n]=size(t);
% define a unit step signal u(t)
u=zeros(m,n);
for i=1:n
    if t(i)>=0
        u(i)=1;
    else
        u(i)=0;
    end
end
%generating a time reversal of unit step signal u(-t)
u1=zeros(m,n);
for i=1:n
    u(i)=u(n);
    n=n-1;
end
%finding the even part of the unit step signal
u_evn=(u+u1)/2;
%finding the odd part of the unit step signal
u_odd=(u-u1)/2;
subplot(411);stem(t,u);title ('unit step signal u(t)');
subplot(412);stem(t,u1);title ('folded unit step signal u(-t)');
subplot(413);stem(t,u_evn);title ('even part of the unit step signal');
subplot(414);step(t,u_odd);title ('odd part of the unit step signal');

% real and imaginary part of a signal
%2.real and imaginary parts of a signal
%define time and frequency
t=0:0.01:1;
f=3;
%define a complex signal
y=exp(1i*2*pi*f*t);
%separate the real  part of the signal using 'real ' command
y_real =real (y);
%separate the imaginary part of the signal using 'imag' ciommand
y_imag=imag(y);
figure;
subplot(211);plot (t,y_real);title ('real component of the complex signal');
subplot(212);plot(t,y_imag);title('imaginary component of the complex signal');
figure;
plot(y_real,y_imag);title('spatial plot');
% roll no:20A91A04N3
%date : 17th november,2021
```


unit step signal u(t)
folded unit step signal u(-t)
even part of the unit step signal
odd part of the unit step signal
x 10^28
Amplitude
Time (seconds)


real component of the complex signal


imaginary component of the complex signal



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