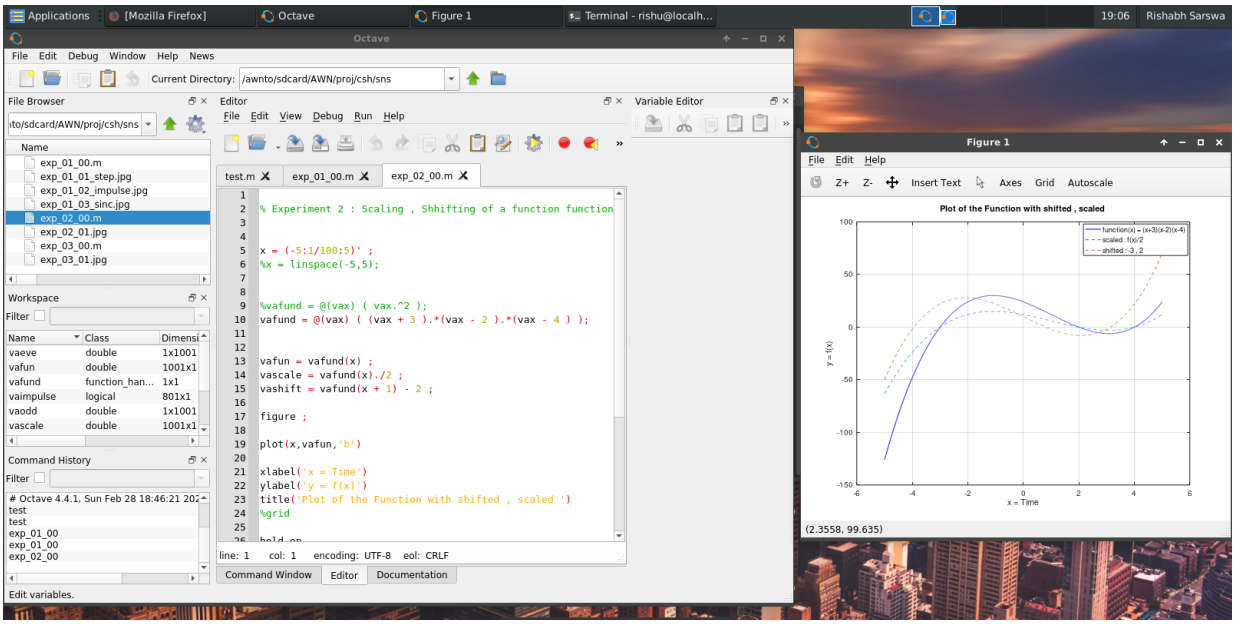
Name : Rishabh Sarswa

Roll no : 19UELE8030

Class : 5th Semester

Project : Signal and System - Experiments

Items used in Project
	A Linux Computer
	Octave



Scientific Programming Octave Watch

Print

Experiment 1 :
	Plot Impulse , Step , Sinc function

```
% Experiment 1 : plot impulse , step , sinc function

x = -4*pi:pi/10:4*pi ;


vastep = x>0 ;

figure ;
plot(x,vastep)
xlabel('Time')
ylabel('Step')
title('Plot of the Step Function')
grid
```

```
figure ;
stem(x,vastep)
xlabel('Time')
ylabel('Step')
title('Plot of the Step Discrete Function')
grid



vaimpulse = x==0 ;

figure ;
plot(x,vaimpulse)
xlabel('Time')
ylabel('Impulse')
title('Plot of the Impulse Function')
grid

figure ;
stem(x,vaimpulse)
xlabel('Time')
ylabel('Impulse')
title('Plot of the Impulse Discrete Function')
grid


for(i=1:1:length(x))
    if(x(i) == 0)
        y(i) = 1 ;
    else
        y(i) = sin(x(i))./x(i) ;
    end
end

figure ;
plot(x,y)
xlabel('Time')
ylabel('sinc(t)')
title('Plot of the Sinc Function')
grid

figure ;
stem(x,y)
xlabel('Time')
ylabel('sinc(t)')
title('Plot of the Sinc Discrete Function')
grid
```

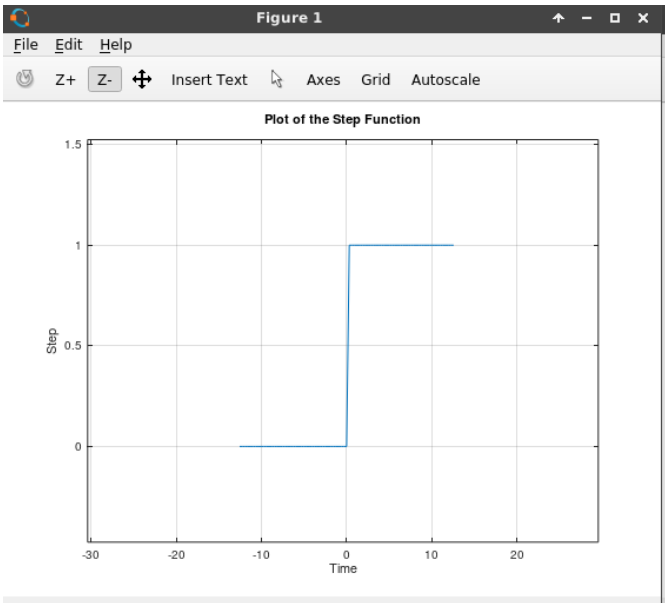


Figure 1
File Edit Help
Z+ Z- Insert Text Axes Grid Autoscale
Plot of the Step Function
Step
Time
(8.3088, -0.11452)

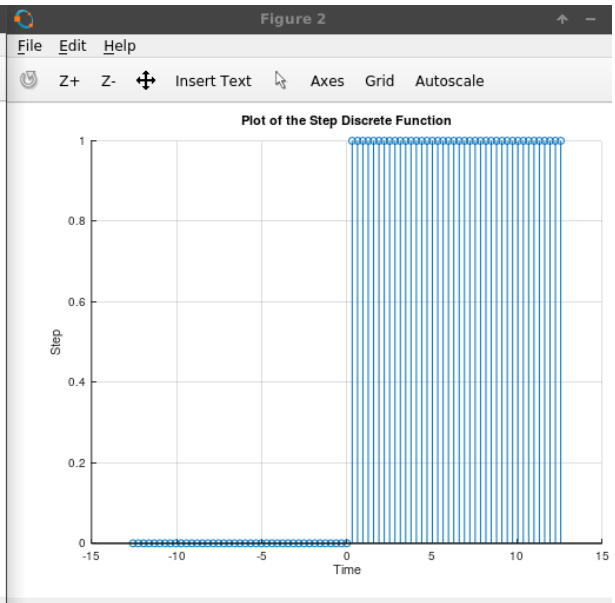


Figure 2
File Edit Help
Z+ Z- Insert Text Axes Grid Autoscale
Plot of the Step Discrete Function
Step
Time
(0.91244, 0.98978)

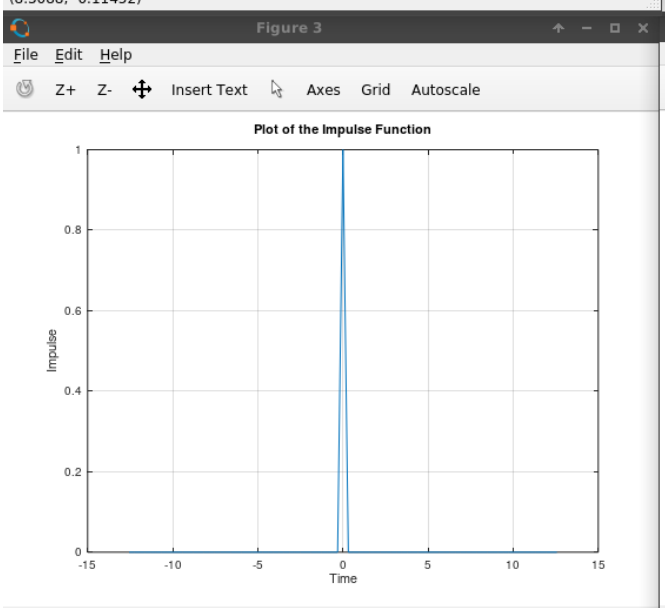


Figure 3
File Edit Help
Z+ Z- Insert Text Axes Grid Autoscale
Plot of the Impulse Function
Impulse
Time
(8.8618, 0.97809)

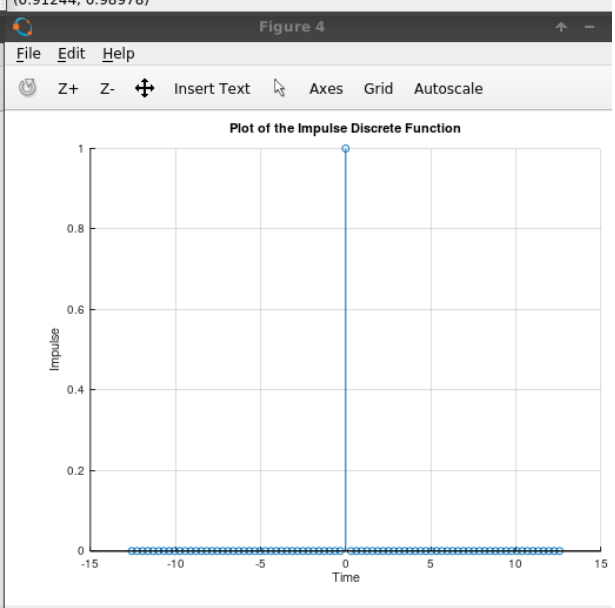


Figure 4
File Edit Help
Z+ Z- Insert Text Axes Grid Autoscale
Plot of the Impulse Discrete Function
Impulse
Time
(6.788, 0.9927)

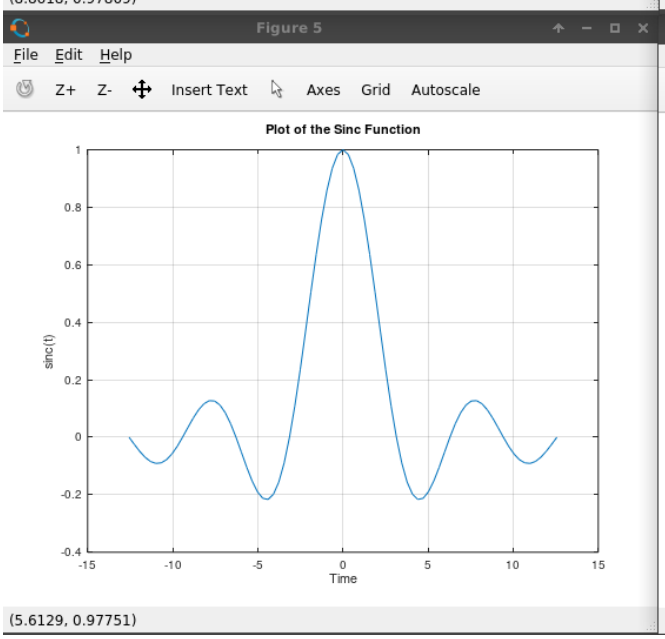


Figure 5
File Edit Help
Z+ Z- Insert Text Axes Grid Autoscale
Plot of the Sinc Function
sinc(t)
Time
(5.6129, 0.97751)

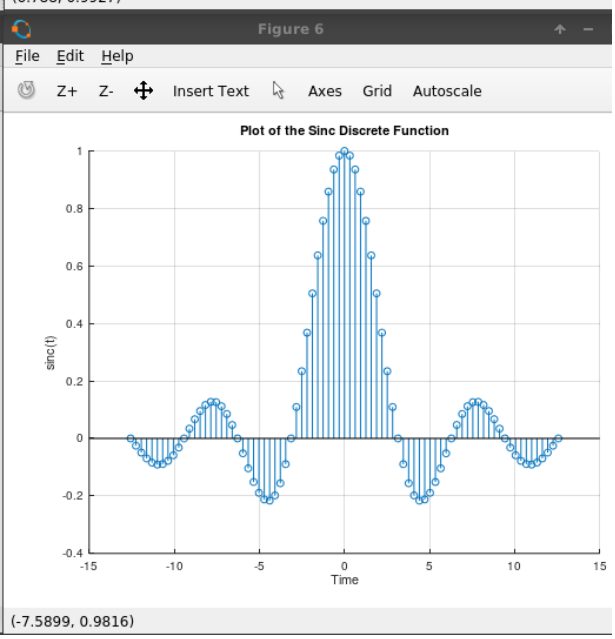
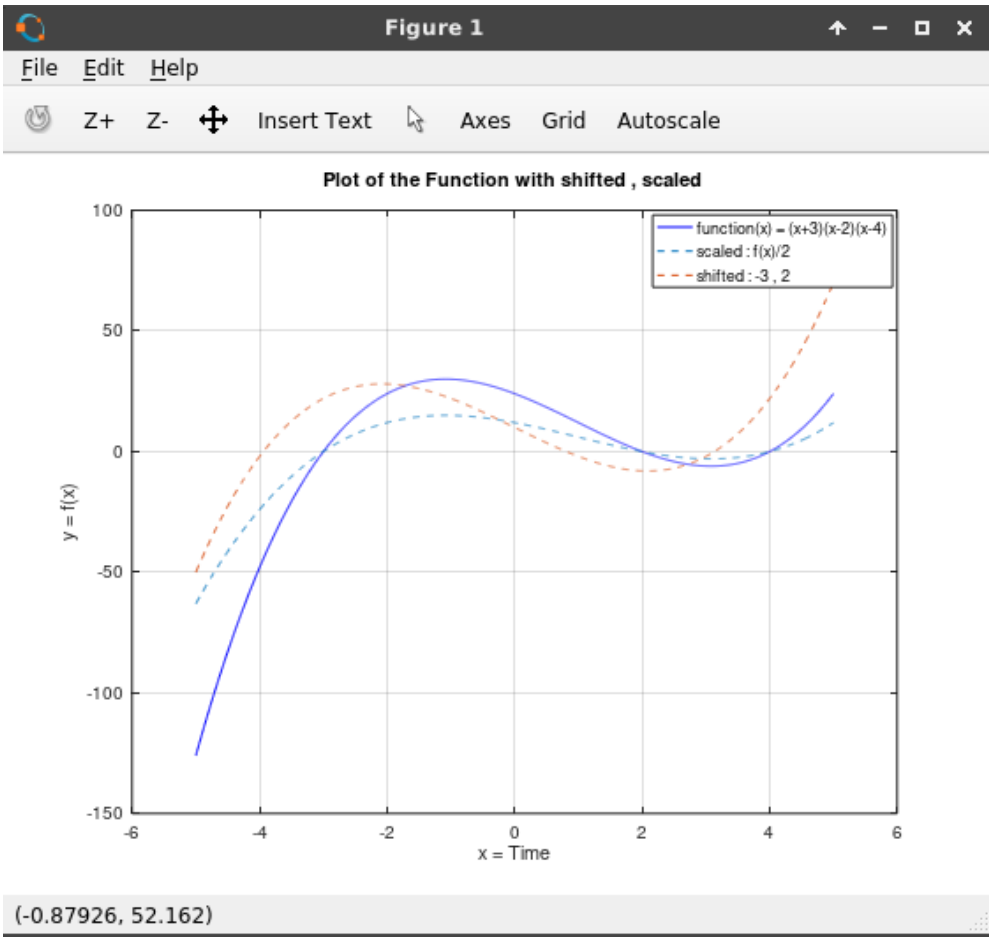


Figure 6
File Edit Help
Z+ Z- Insert Text Axes Grid Autoscale
Plot of the Sinc Discrete Function
sinc(t)
Time
(-7.5899, 0.9816)

Step , Impulse , Sinc Functions

Experiment 2 :
Scaling , Shifting of function

```
% Experiment 2 : Scaling , Shifting of a function function


x = -5:1/100:5 ;

%vafund = @(vax) ( vax.^2 );
vafund = @(vax) ( (vax + 3 ).*(vax - 2 ).*(vax - 4 ) );


vafun = vafund(x) ;
vascale = vafund(x)./2 ;
vashift = vafund(x + 1) - 2 ;

figure ;

plot(x,vafun,'b')

xlabel('x = Time')
ylabel('y = f(x)')
title('Plot of the Function with shifted , scaled ')
%grid

hold on

plot(x,vascale,'--')
plot(x,vashift,'--')

%grid

hold off

grid
legend('function(x) = (x+3)(x-2)(x-4)','scaled : f(x)/2', 'shifted : -3 , 2')
```



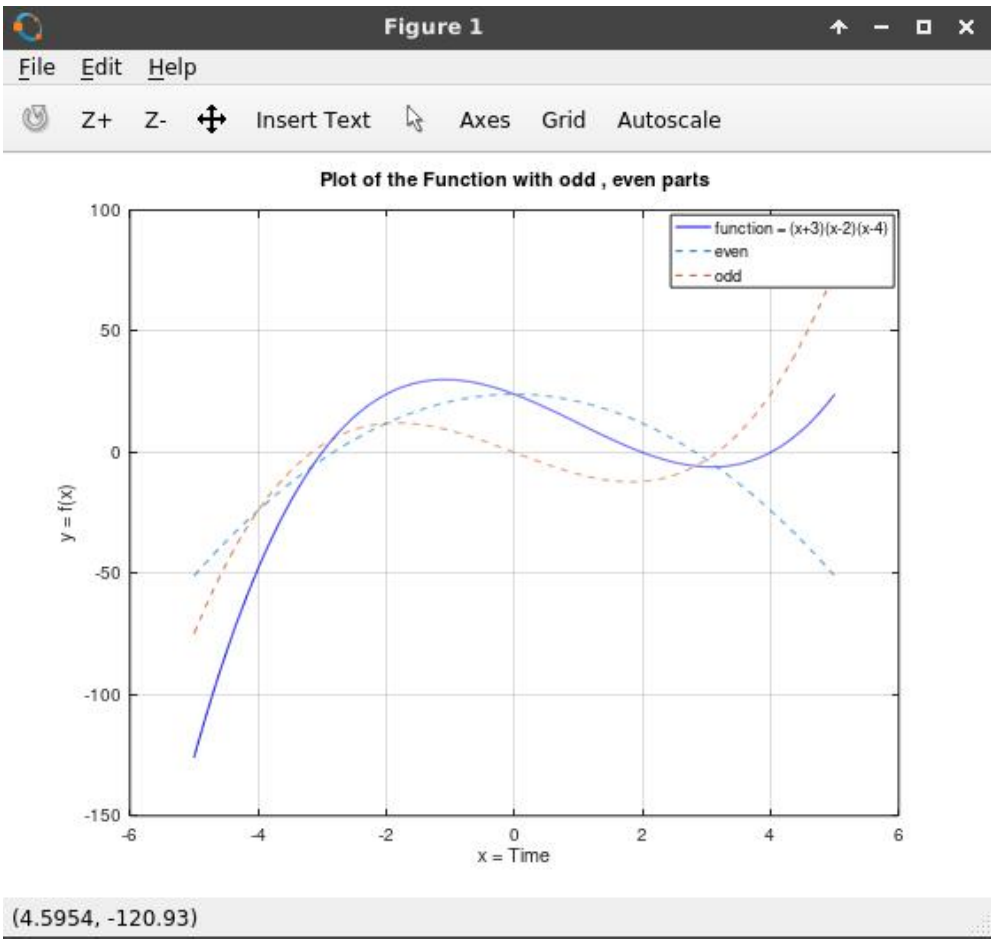
Scaled , Shifted

Experiment 3 :
Scaled , Shifted

Experiment 3 :
odd , even parts of function

```
% Experiment 3 : odd , even parts of a function function


x = -5:1/100:5 ;


vafund = @(vax) ( (vax + 3 ).*(vax - 2 ).*(vax - 4 ) );


vafun = vafund(x) ;
vaeve = ( vafund(x) + vafund(-1*x) )./2 ;
vaodd = ( vafund(x) - vafund(-1*x) )./2 ;

figure ;

plot(x,vafun,'b')
```

```
xlabel('x = Time')
ylabel('y = f(x)')
title('Plot of the Function with odd , even parts')
%grid

hold on

plot(x,vaeve,'--')
plot(x,vaodd,'--')

%grid

hold off

grid
legend('function = (x+3)(x-2)(x-4)','even', 'odd')
```



Odd , Even part of function