```
#1.plotting
x=[1 -2 4 5];
n=[0 1 2 3];
figure(1);
stem(n,x);
```

```
#signum function
x=[-1 -1 -1 0 1 1 1];
n=[-3 -2 -1 0 1 2 3];
figure(2);
stem(n,x);
```

```
#sine function
pi
ans = 3.1416
a=2.5;
f=3.5;
t=0:0.1:1;
xt=a*sin(2*pi*f*t);
figure(3);
stem(t,xt);
```

```
#cos wave
pi
ans = 3.1416
a=2.5;
f=3.5;
t=0:0.1:1;
xt=a*cos(2*pi*f*t);
figure(3);
stem(t,xt);
```

```
#composite wave
t=0:0.1:1;
a1=2.5;
a2=3.5;
a3=4.5;
f1=4;
f2=11;
f3=31;
signal1=a1*sin(2*pi*f1*t);
signal2=a2*sin(2*pi*f2*t);
signal3=a3*sin(2*pi*f3*t);
signal=signal1+signal2+signal3;
plot(t,signal);
```

```
#exponential
n=-100:100;
alpha=0.91;
x=alpha.^n;
figure(4);
stem(n,x);
```

```
#unit step
n=0:1:10;
un=[ones(1,11)];
subplot(2,2,1);
stem(n,un);
```

```
#time shifting
#u(n-2)
n=-5:1:5;
un1=[zeros(1,7),ones(1,4)];
subplot(2,2,2);
stem(n,un1);
```

```
#u(n)-u(n-2)
n=-5:1:5;
un=[ones(1,11)];
un1=[zeros(1,7),ones(1,4)];
```

```
y=un-un1;
subplot(2,2,3);
stem(n,y);
```

```
#impulse
n = 0:1:10;
delta_n = [1, zeros(1,10)];
stem(n, delta_n);
title('Unit Impulse Signal');
xlabel('n');
ylabel('\delta[n]');
```

```
#unit ramp
n = 0:1:10;
rn = n;
stem(n, rn);
title('Unit Ramp Signal');
xlabel('n');
ylabel('r[n]');
```

```
#unit parabolic
n = 0:1:10;
pn = 0.5 * n.^2;
stem(n, pn);
title('Unit Parabolic Signal');
xlabel('n');
ylabel('p[n]');
```