1. UNIT STEP SIGNAL:

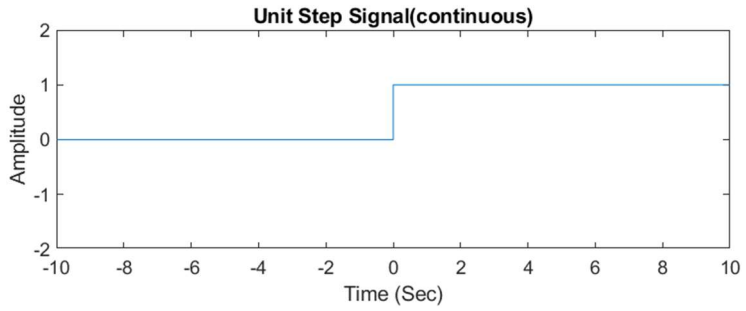
CODE:

```
%unit step function

t1 = -10 : 0;
t2 = 0 : 10;
t = [t1 t2];

ut1 = zeros(1,11);
ut2 = ones(1,11);
ut = [ut1 ut2];

subplot(211);
plot(t, ut);
title('Unit Step Signal(continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -2 2]);

subplot(212);
stem(t, ut);
title('unit step signal(discrete)');
xlabel('time');
ylabel('Amplitude');
axis([-10 10 -2 2]);
```

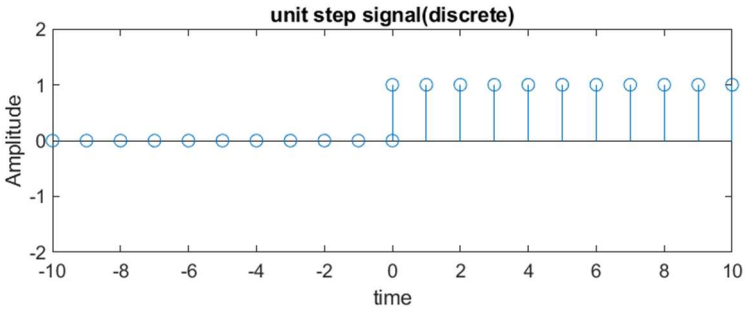
RESULT:

OUTPUT WAVEFORMS:

Unit Step Continuous



Unit Step Discrete



2.IMPULSE SIGNAL:

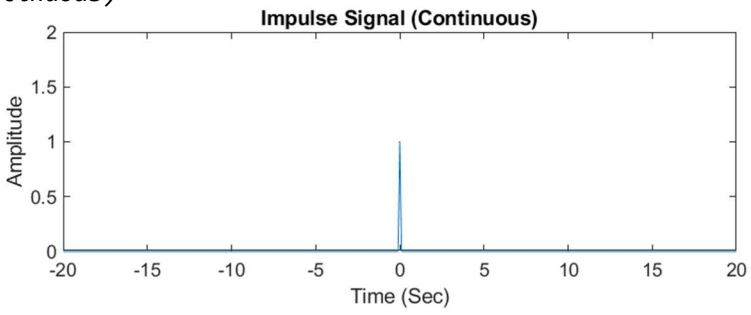
CODE:

```
%Impulse function
fs = 10;
n = -20 : 1 / fs : 20;
t = -20 : 1 / fs : 20;

imp = zeros(1, length(n));
imp(n == 0) = 1;

amp = zeros(1, length(t));
amp(t == 0) = 1;

subplot(211);
plot(n, imp);
title('Impulse Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-20 20 0 2]);

subplot(212);
stem(t, amp);
title('Impulse Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-20 20 0 2]);
```

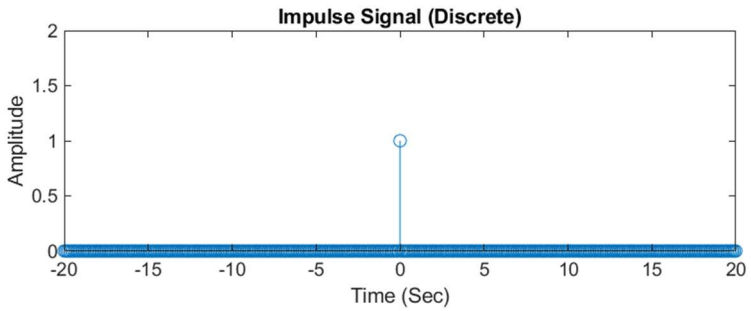
RESULT:

OUTPUT WAVEFORMS:

Unit Impulse (Continuous)



Unit Impulse (Discrete)



3. SIGNUM FUNCTION:

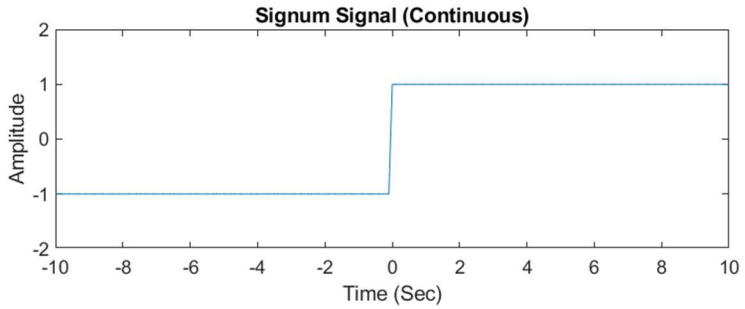
CODE:

```
%signum function

t = -10 : 0.01 : 10;
unitstep = t >= 0;
signum = 2.*unitstep - 1;

subplot(211)
plot(t, signum)
title('Signum Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -2 2])

subplot(212)
stem(t, signum)
title('Signum Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -2 2])
```

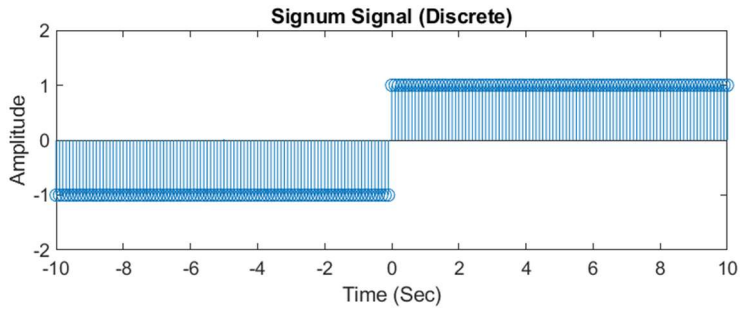
RESULT:

OUTPUT WAVEFORMS:

Signum Signal (Continuous)



Signum Signal (Discrete)



4. EXPONENTIAL SIGNAL:

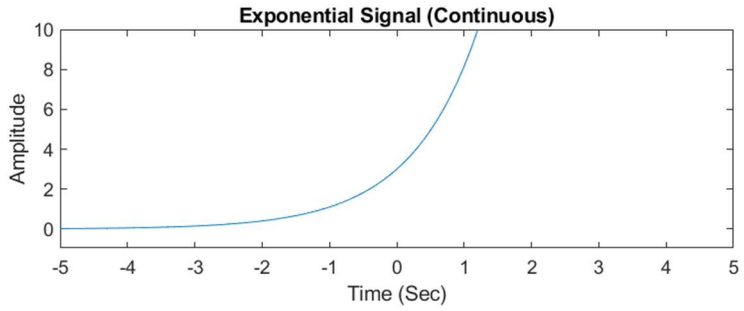
CODE:

```
%exponential function

b = 1;
a = 3;
t = -5 : 0.1 : 5;
x = a * exp(b * t);

subplot(211)
plot(t, x)
title('Exponential Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-5 5 -1 10])

subplot(212)
stem(t, x)
title('Exponential Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-5 5 -1 10])
```

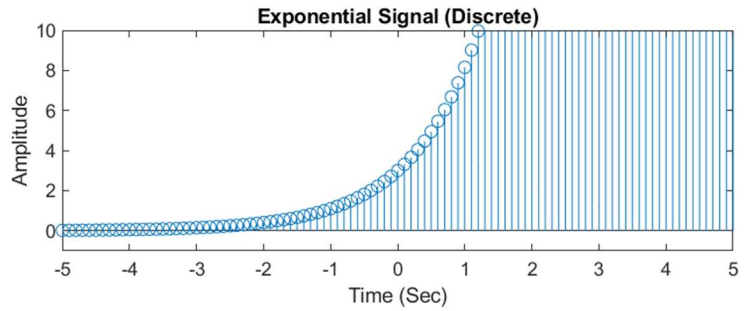
RESULT:

OUTPUT WAVEFORMS:

Exponential Signal (Continuous)



Exponential Signal (Discrete)



5. UNIT RAMP SIGNAL:

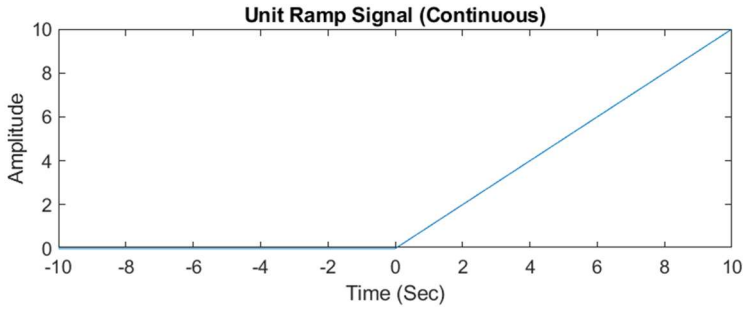
CODE:

```
%ramp function

t1 = -10 : 0;
t2 = 0 : 10;
t = [t1 t2];
ramp1 = zeros(1,11);
ramp2 = t2;
ramp = [ramp1 ramp2];

subplot(211)
plot(t, ramp)
title('Unit Ramp Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');

subplot(212)
stem(t, ramp)
title('Unit Ramp Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
```

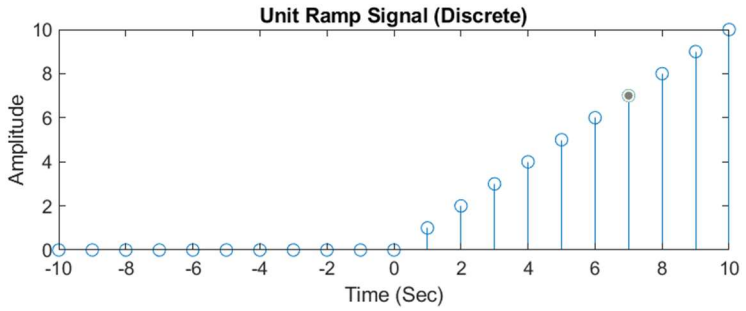
RESULT:

OUTPUT WAVEFORMS:

Unit Ramp Signal (Continuous)



Unit Ramp Signal (Discrete)



6. PARABOLIC SIGNAL:

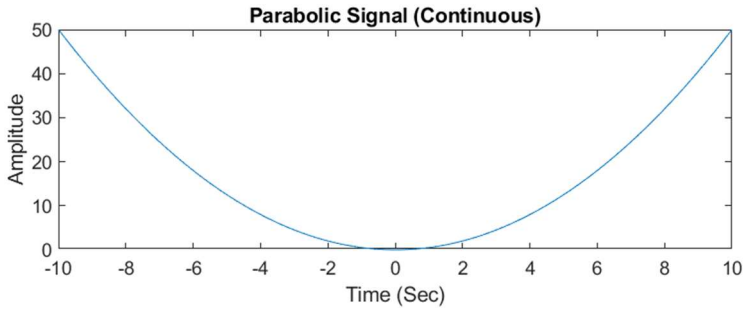
CODE:

```
%parabolic function

t = -10 : 0.1 : 10;
par = (t.^2) / 2;

subplot(211)
plot(t, par)
title('Parabolic Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');

subplot(212)
stem(t, par)
title('Parabolic Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
```

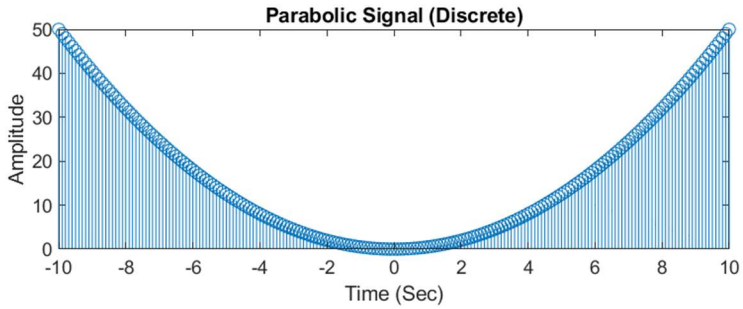
RESULT:

OUTPUT WAVEFORMS:

Parabolic Signal (Continuous)



Parabolic Signal (Discrete)



7. RECTANGULAR SIGNAL:

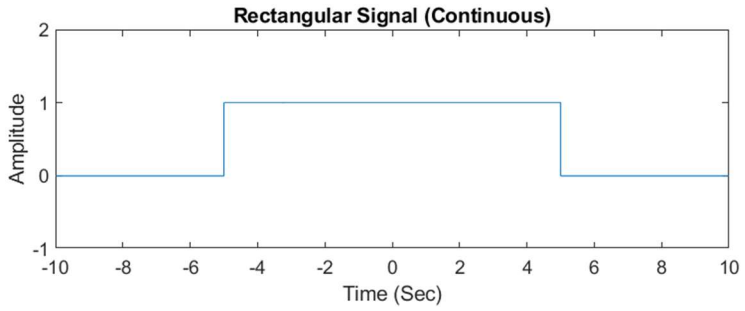
CODE:

```
%rectangular function

t1 = -10:-5;
t2 = -5:5;
t3 = 5:10;
t = [t1 t2 t3];
x1 = zeros(1,6);
x2 = ones(1,11);
x3 = zeros(1,6);
xt = [x1 x2 x3];

subplot(211)
plot(t, xt)
title('Rectangular Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -1 2])

subplot(212)
stem(t, xt)
title('Rectangular Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -1 2])
```

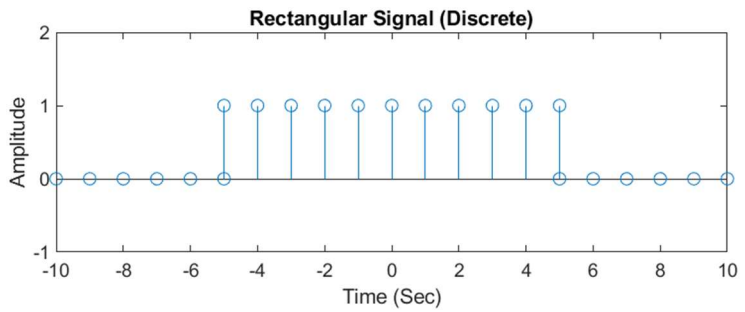
RESULT:

OUTPUT WAVEFORMS:

Rectangular Signal (Continuous)



Rectangular Signal (Discrete)



8. TRIANGULAR SIGNAL:

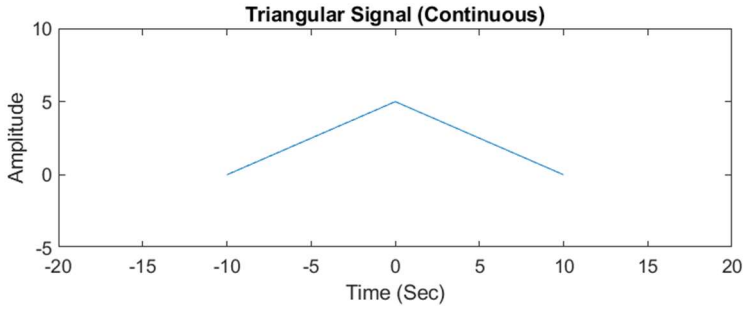
CODE:

```
%triangular signal

A = 5;
T = -20 : 20;
T = 10;
xt = A*(1 - abs(t / T));

subplot(211)
plot(t, xt)
title('Triangular Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-20 20 -5 10])

subplot(212)
stem(t, xt)
title('Triangular Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-20 20 -5 10])
```

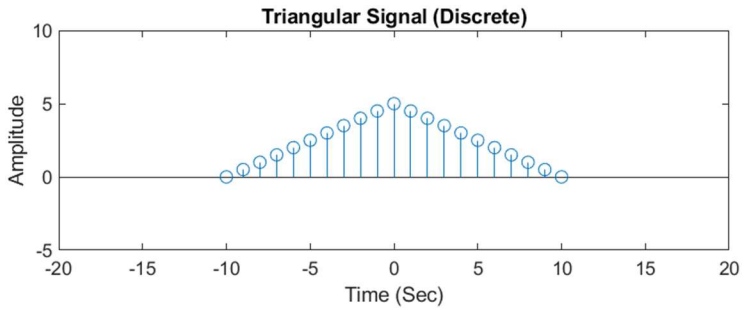
RESULT:

OUTPUT WAVEFORM:

Triangular Signal (Continuous)



Triangular Signal (Discrete)



9. SINOSOIDAL SIGNAL:

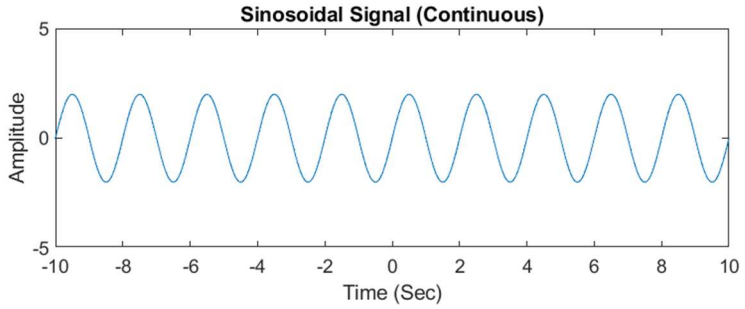
CODE:

```
%sinusidal function

A = 2;
f = 0.5;
t = -10 : 0.01 : 10;
x = A * sin(2 * pi * f * t);

subplot(211)
plot(t, x)
title('Sinosoidal Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -5 5])

n = -10 : 0.1 : 10;
y = A * sin(2 * pi * f * n);

subplot(212)
stem(n, y)
title('Sinosoidal Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -2 2])
```

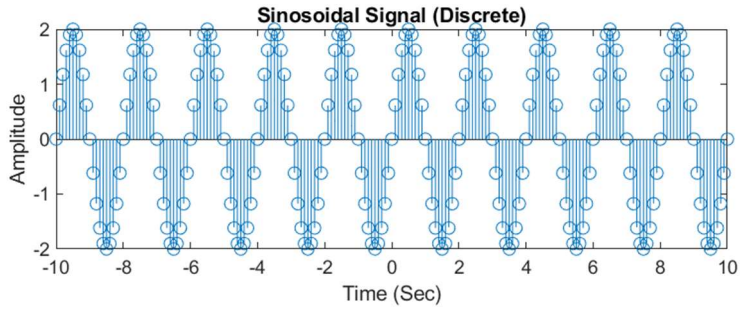
RESULT:

OUTPUT WAVEFORMS:

Sinosoidal Signal (Continuous)



Sinosoidal Signal (Discrete)



10. SINC SIGNAL:

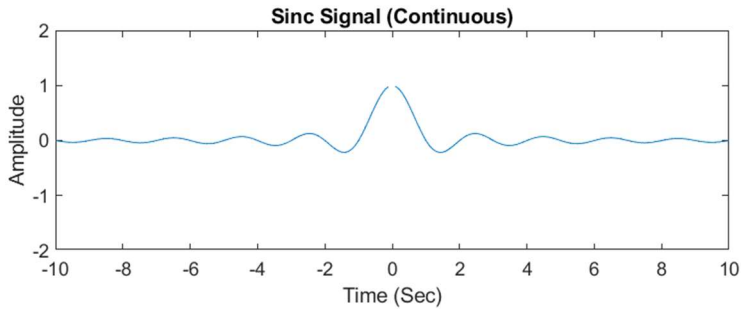
CODE:

```
%sinc signal

Lamda = -10 : 0.1 : 10;
Sinc = sin(pi.*Lamda) ./ (pi.*Lamda);

subplot(211)
plot(Lamda, Sinc)
title('Sinc Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -2 2])

subplot(212)
stem(Lamda, Sinc)
title('Sinc Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-10 10 -2 2])
```

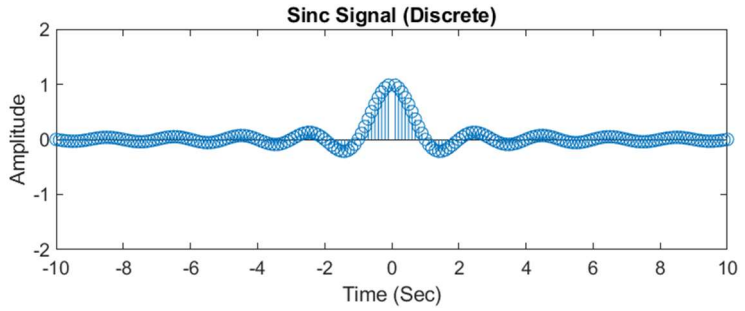
RESULT:

OUTPUT WAVEFORMS:

Sinc Signal (Continuous)



Sinc Signal (Discrete)



11. SAMPLING SIGNAL:

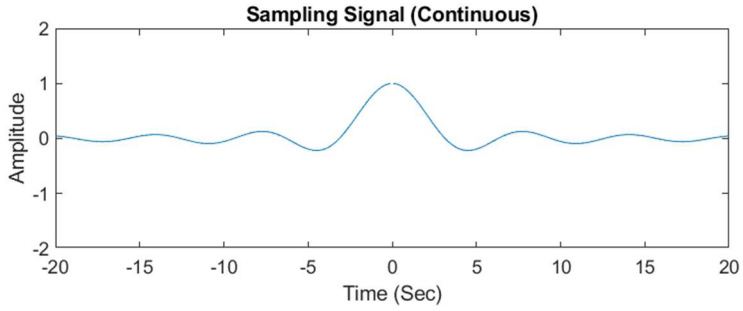
CODE:

```
%Sampling signal

lamda = -20 : 0.1 : 20;
s = sin(lamda) ./ (lamda);

subplot(211)
plot(lamda, s)
title('Sampling Signal (Continuous)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-20 20 -2 2])

subplot(212)
stem(lamda, s)
title('Sampling Signal (Discrete)');
xlabel('Time (Sec)');
ylabel('Amplitude');
axis([-20 20 -2 2])
```

RESULT:

OUTPUT WAVEFORM:

Sampling Signal (Continuous)



Sampling Signal (Discrete)