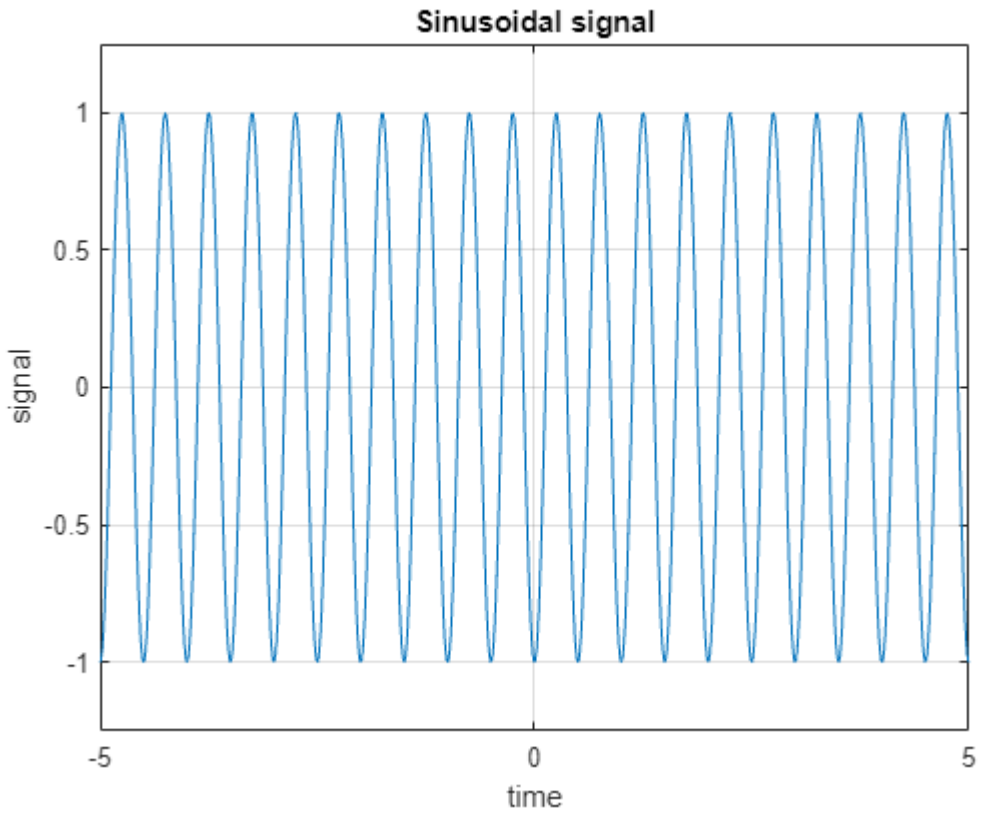
Usage: choose the relevant parameters for each signal, then run the block.

Define and plot a sinusoidal signal

```
n_max = 5;
A = 1;
f = 2;
theta = pi;
offset = 0;
t = -n_max:0.01:n_max;
sinusoid = A*cos(2*pi*f*t + theta) + offset;

plot(t,sinusoid) % change to stem for discrete signals
xlabel('time');
ylabel('signal');
xlim([-n_max n_max])
ylim([-A-0.25*A A+0.25*A])
grid;
title('Sinusoidal signal');
```



Define and plot another sinusoid

```
n_max_2 = 5;
A_2 = 1;
f_2 = 2;
```

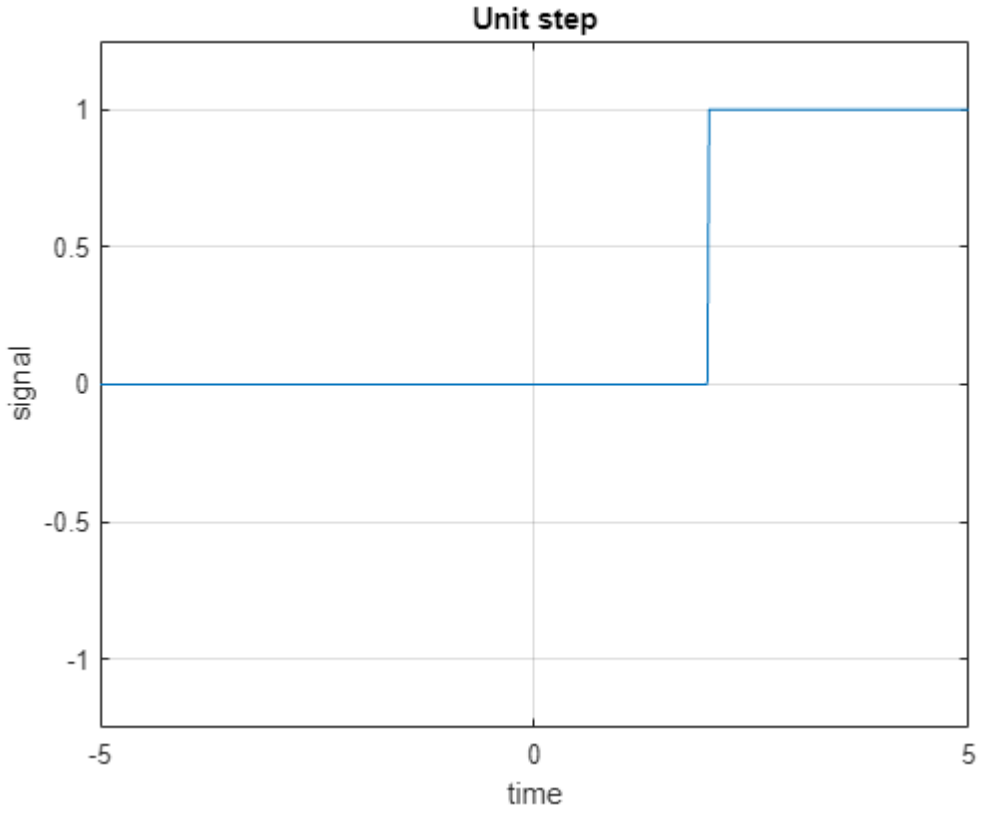
```
theta_2 = pi;
offset_2 = 0;
sinusoid_2 = A_2*cos(2*pi*f_2*t + theta_2) + offset_2;

plot(t,sinusoid_2) % change to stem for discrete signals
xlabel('time');
ylabel('signal');
xlim([-n_max_2 n_max_2])
ylim([-A_2-0.25*A_2 A_2+0.25*A_2])
grid;
title('Sinusoidal signal #2');
```

Define and plot a square signal

```
n_max_square = 3;
A_square = 1;
f_square = 0.25;
theta_square = 0;
offset_square = 0;
t_square = -n_max:0.01:n_max;
duty_cycle = 50;
square_wave = A_square*square(2*pi*f_square*t_square+theta_square, duty_cycle) +
offset_square;

plot(t_square, square_wave);
xlabel('time');
ylabel('signal');
xlim([-n_max_square n_max_square]);
ylim([-A_square-0.25*A_square A_square+0.25*A_square]);
grid;
title('Square wave signal');
```

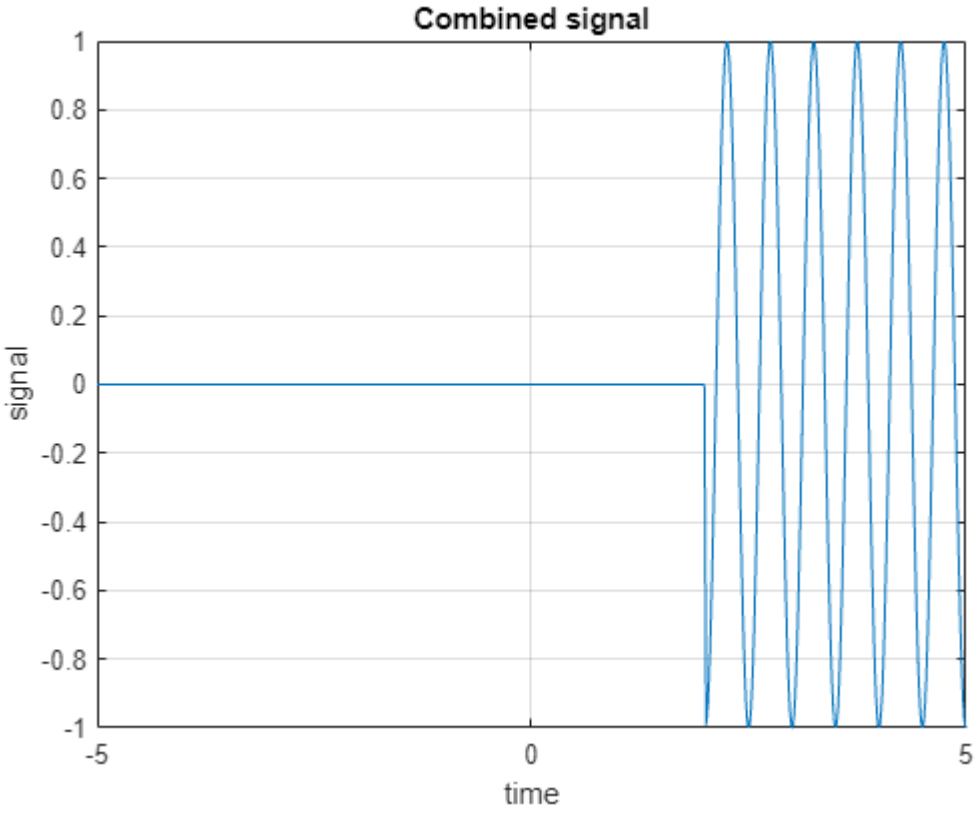
Define and plot a unit step function

```
unit_step = heaviside(t-2);

plot(t,unit_step) % change to stem for discrete signals
xlabel('time');
ylabel('signal');
xlim([-n_max n_max])
ylim([-A-0.25*A A+0.25*A])
grid;
title('Unit step');
```



Combine signals

```
sum_signal = sinusoid .* unit_step; % choose the constituent signals

plot(t, sum_signal);
xlabel('time');
ylabel('signal');
xlim([-n_max n_max]);
grid;
title('Combined signal');
```


Combined signal
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
signal
-5
0
5
time