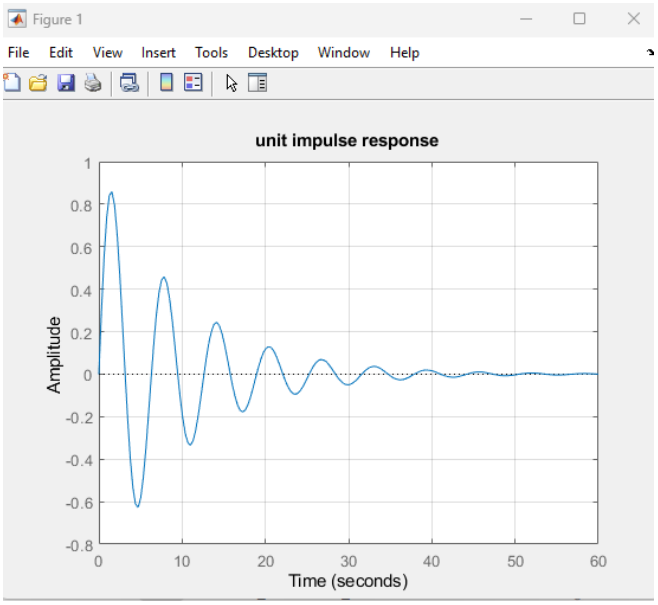
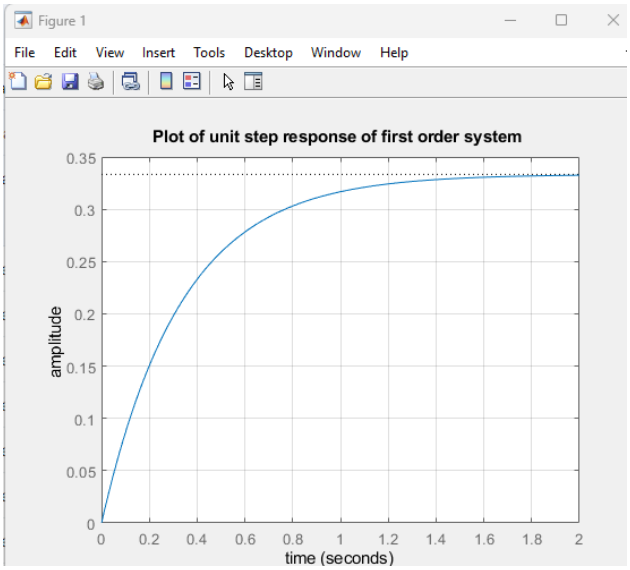
```
% plot unit step response of the closed loop transferred function
% time should be upto 3 second
num=[1]
den=[1 2];
g=tf(num,den)
sysy1=feedback(g,1)
step(sysy1)
grid on;
title("Plot of unit step response of first order system ")
xlabel('time')
ylabel('amplitude')
```

```
g =

    1
  -----
  s + 2

Continuous-time transfer function.
Model Properties

sysy1 =

    1
  -----
  s + 3

Continuous-time transfer function.
Model Properties
```





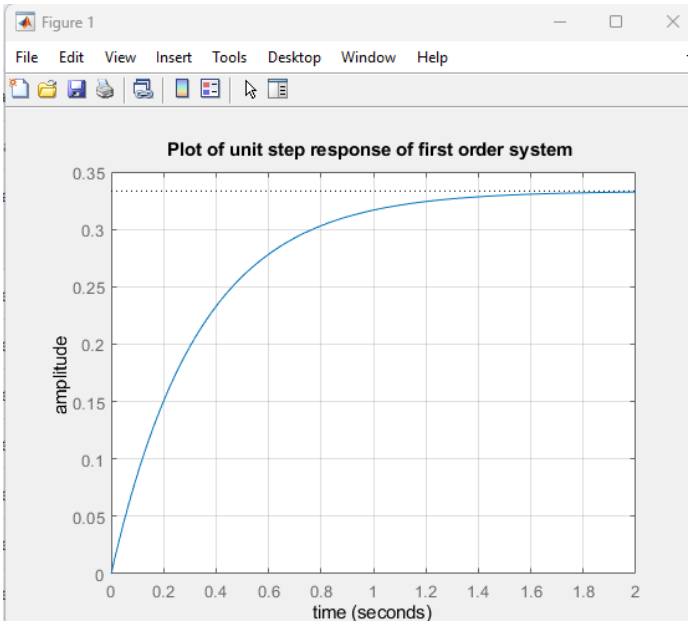

```
g =

        9
  -------------
  s^2 + 2 s + 9

Continuous-time transfer function.
Model Properties
>>
```

```
%unit impulse response of G(s)=1/s^2+0.2s+1
num=[1];
den=[1 0.2 1];
impulse(num,den)
grid
title("unit impulse response")
```

```
>> exp2

g =

       18
  -------------
  s^2 + 2 s + 9

Continuous-time transfer function.
Model Properties
>>
```

```
% plot unit response of a second order system
n=[9];
d=[1 2 9];
g=tf(n,d)
step(g)
grid on;
title('plot of unit step response of first order system')
xlabel('time')
ylabel('amplitude')
```

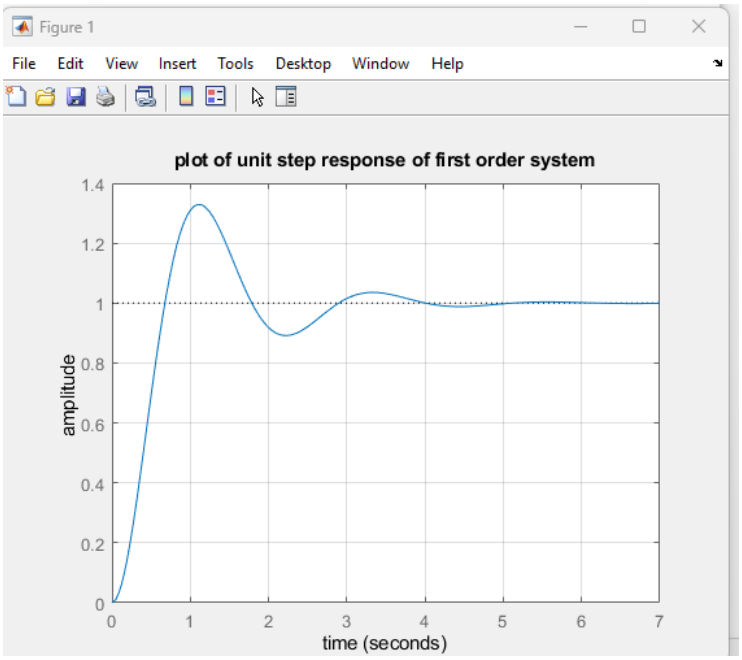
```
% plot the step response of the closed loop transfered function
% G(s)=36/(s^2+3s+36) and find out the values of maximum overshoot,rise
%time,setting time,peak time and steady state error
n=[36];
d=[1 3 36];
sys=tf(n,d)
step(sys)
grid on;
title('plot of unit step response of second order system')
para=stepinfo(sys)
```

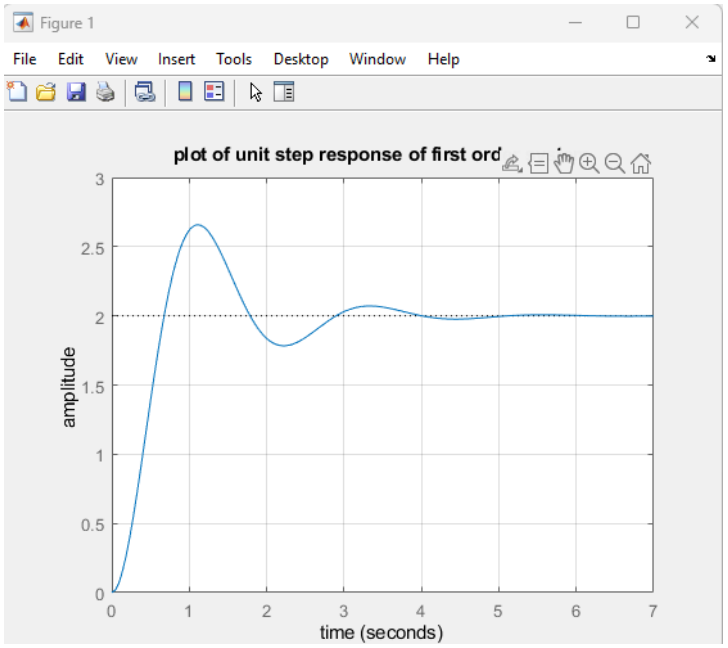



```
sys =

        36
  -------------
  s^2 + 3 s + 36

Continuous-time transfer function.
Model Properties

para =

  struct with fields:

        RiseTime: 0.2114
    TransientTime: 2.3526
     SettlingTime: 2.3526
      SettlingMin: 0.8027
      SettlingMax: 1.4432
        Overshoot: 44.3235
       Undershoot: 0
             Peak: 1.4432
         PeakTime: 0.5526

>>
```

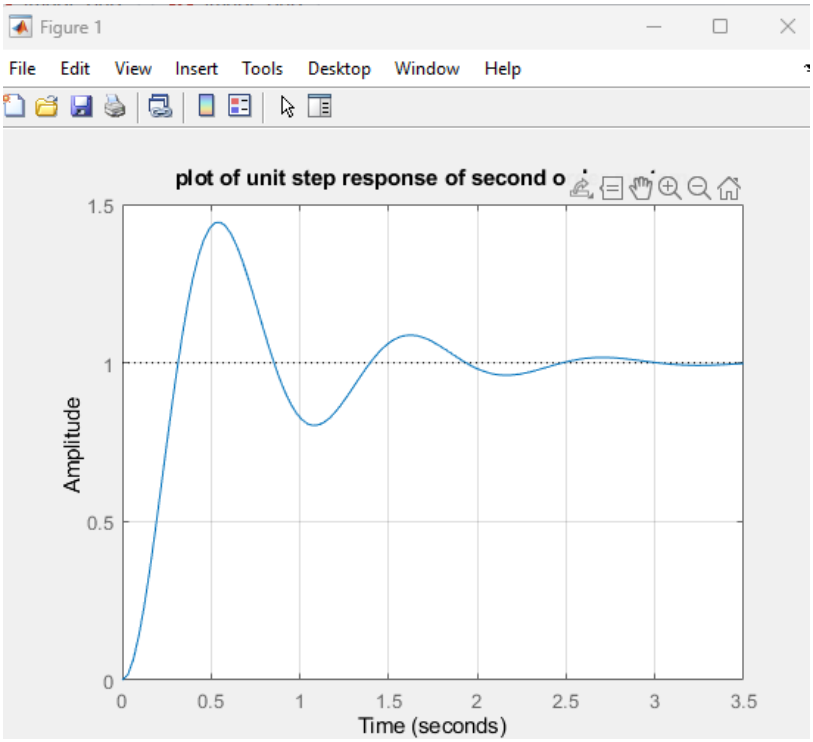
```
y=step(sys);
peak=max(y)
oversh=(peak-1/1)*100
```

```
sys =

        36
  -------------
  s^2 + 3 s + 36

Continuous-time transfer function.
Model Properties

peak =

    1.4432


oversh =

   44.3235
```



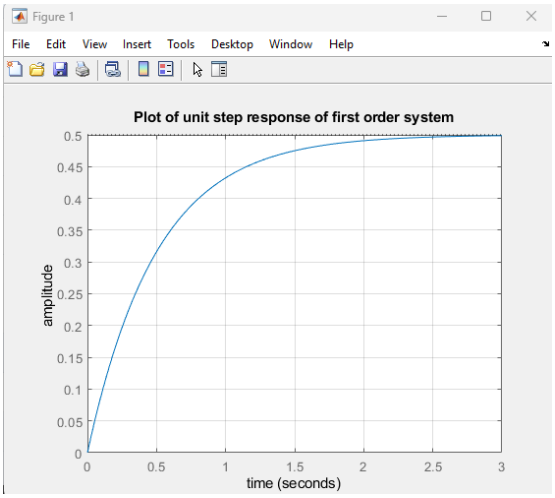


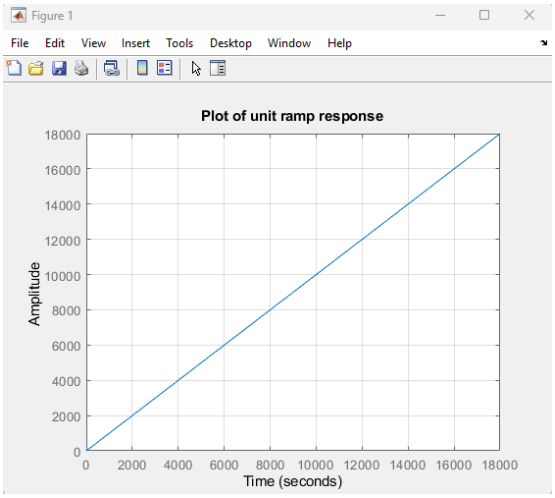

```
% plot unit response of a second order system
n=[18];
d=[1 2 9];
g=tf(n,d)
step(g)
grid on;
title('plot of unit step response of first order system')
xlabel('time')
ylabel('amplitude')
```



```
num=[1]
den=[1 2];
g=tf(num,den)
step(g)
grid on;
title("Plot of unit step response of first order system")
xlabel('time')
ylabel('amplitude')
```

```
>> exp_1

num =

     1


g =

    1
  -----
  s + 2

Continuous-time transfer function.
Model Properties
>>
```






```
% unit ramp response of G(s)=(2s+1)/(s^2 +0.2s+1)
% the unit ramp response is obtained as the unit step of g(s)/s
num=[1]
den=[2 1 0];
t=0:0.1:10;
step(num,den)
grid
title("Plot of unit ramp response")
```


```
% unit ramp response of G(s)=(2s+1)/(s^2 +0.2s+1)
% the unit ramp response is obtained as the unit step of g(s)/s
num=[1]
den=[2 1 0];
t=0:0.1:10;
step(num,den)
grid
title("Plot of unit ramp response")
```


```
% plot unit step response of the closed loop transferred function
% time should be upto 3 second
num=[1]
den=[1 2];
g=tf(num,den)
sysy1=feedback(g,1)
step(sysy1)
grid on;
title("Plot of unit step response of first order system ")
xlabel('time')
ylabel('amplitude')
```

```
g =

    1
  -----
  s + 2

Continuous-time transfer function.
Model Properties

sysy1 =

    1
  -----
  s + 3

Continuous-time transfer function.
Model Properties
```