L. Odilon Petra I.
Tugas minggu 5

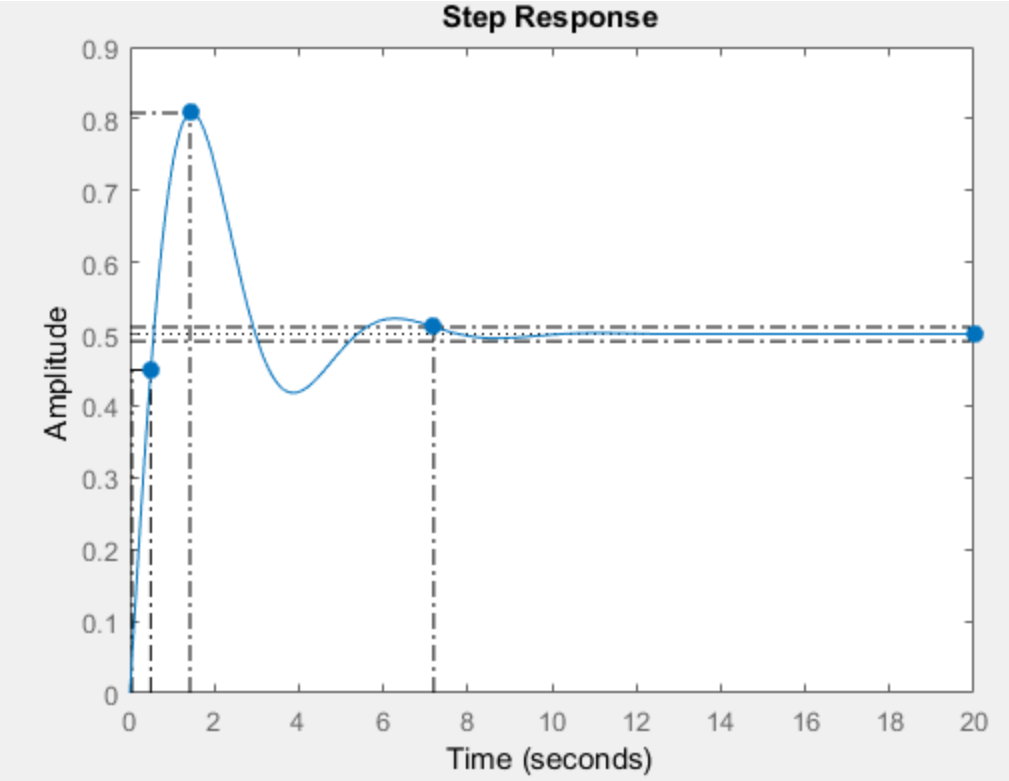
Link Github: https://github.com/dilonpetra/Sistem-Kendali.git

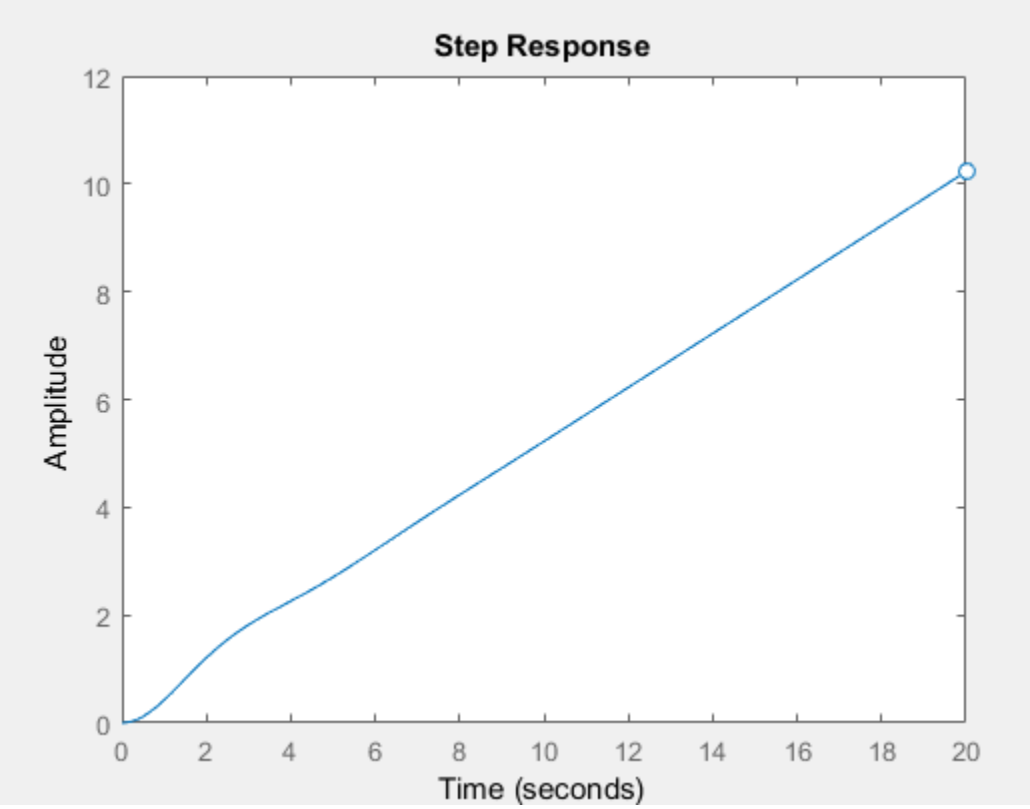
```
%Kd diubah ke 1,3,5,7,9
T = 1
Kp = 1;
Kd = 1;
s = tf('s')

num = 1;
den = [T T/10 1];

num_ct = [Kd Kp]

sys = tf(num, den);
sys_ct = tf(num_ct, [1]);
sys_cl = feedback(sys_ct*sys, 1);

step(sys_cl)
step(sys_cl/s)
impulse(sys_cl)
stepinfo(sys_cl)
xlim([0 30])
```

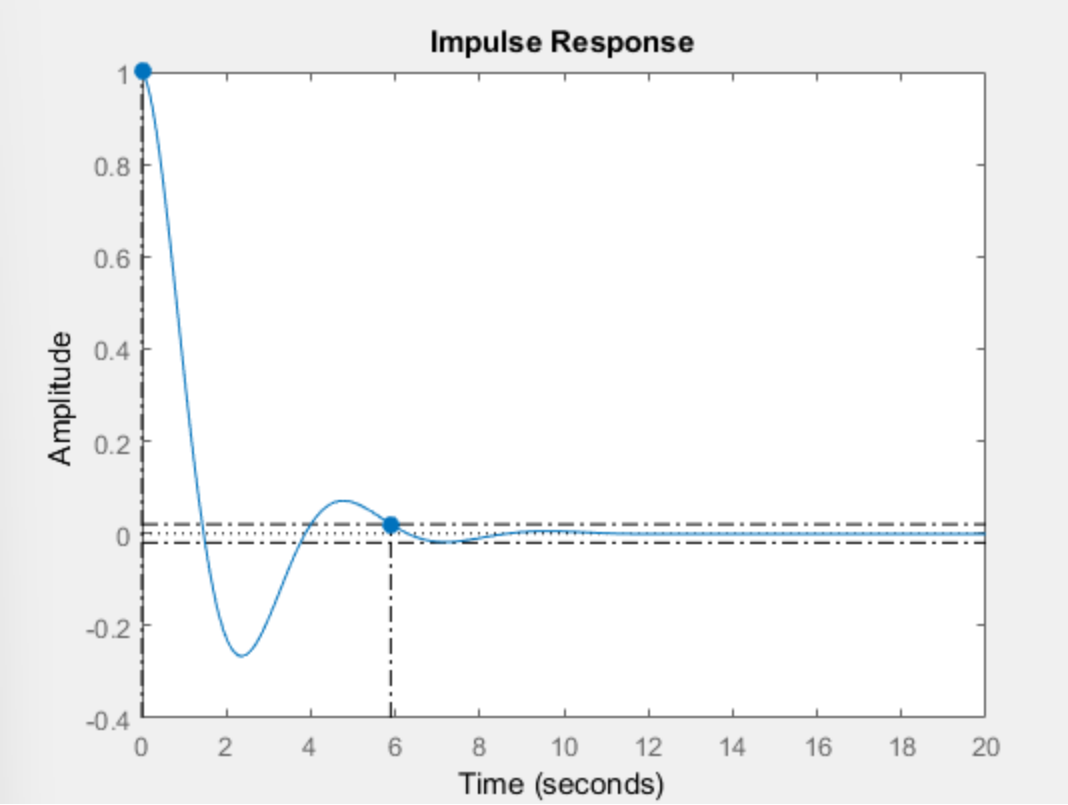
Program diawali dengan mendeklarasikan variable dan nilainya. T diset ke 1 dan d diberikan nilai 1,3,5,7,9.

System dikalikan dengan sistem P dan D dan difeedbackan dengan feedback(sys_ct*sys, 1);

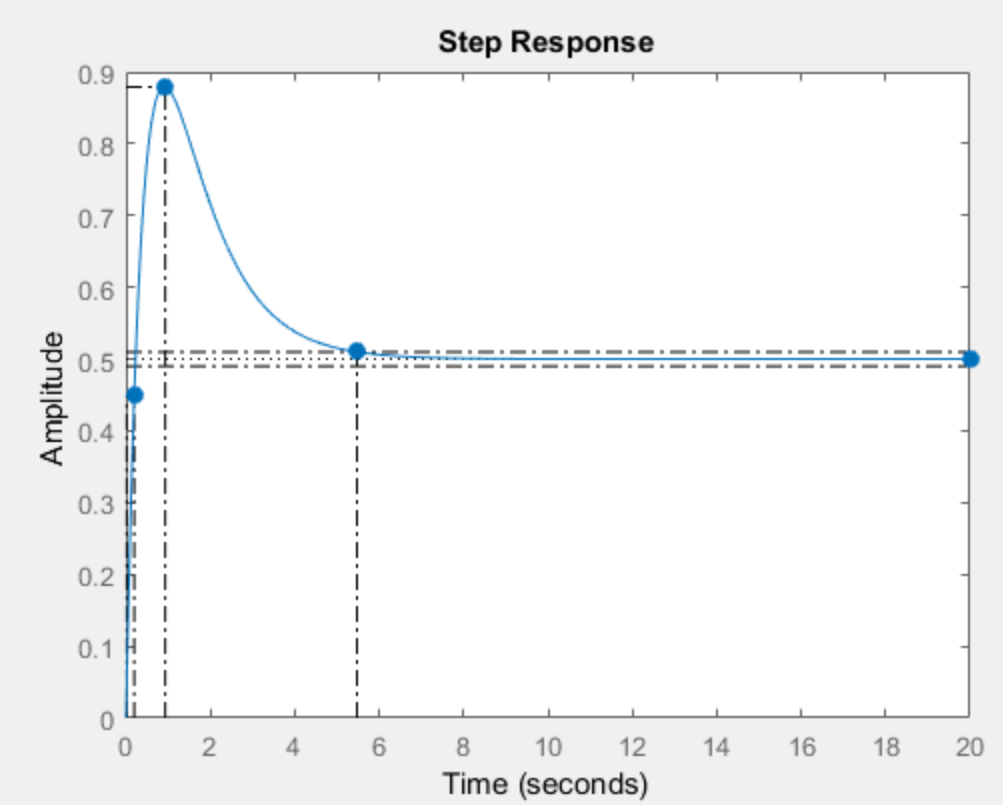
Kemudian setiap variasi D akan dilihat grafik Step Ramp Impulse beserta nilai Rise time, settling time, overshoot dan steady state error.

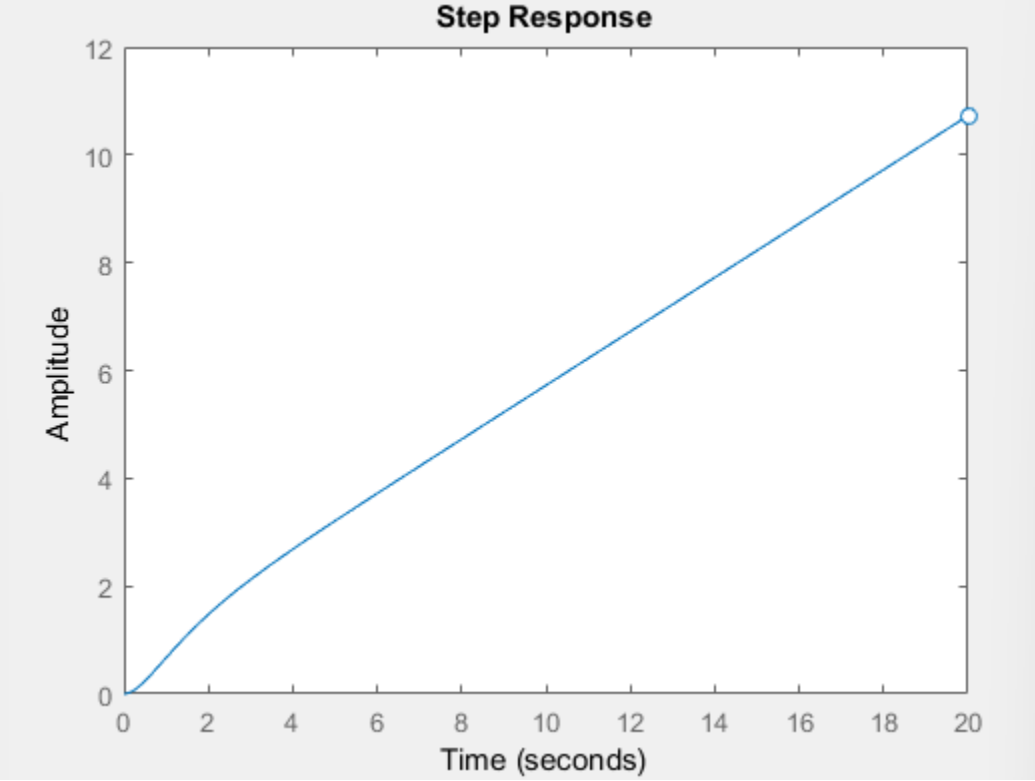

Step Response
Amplitude
Time (seconds)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0
2
4
6
8
10
12
14
16
18
20

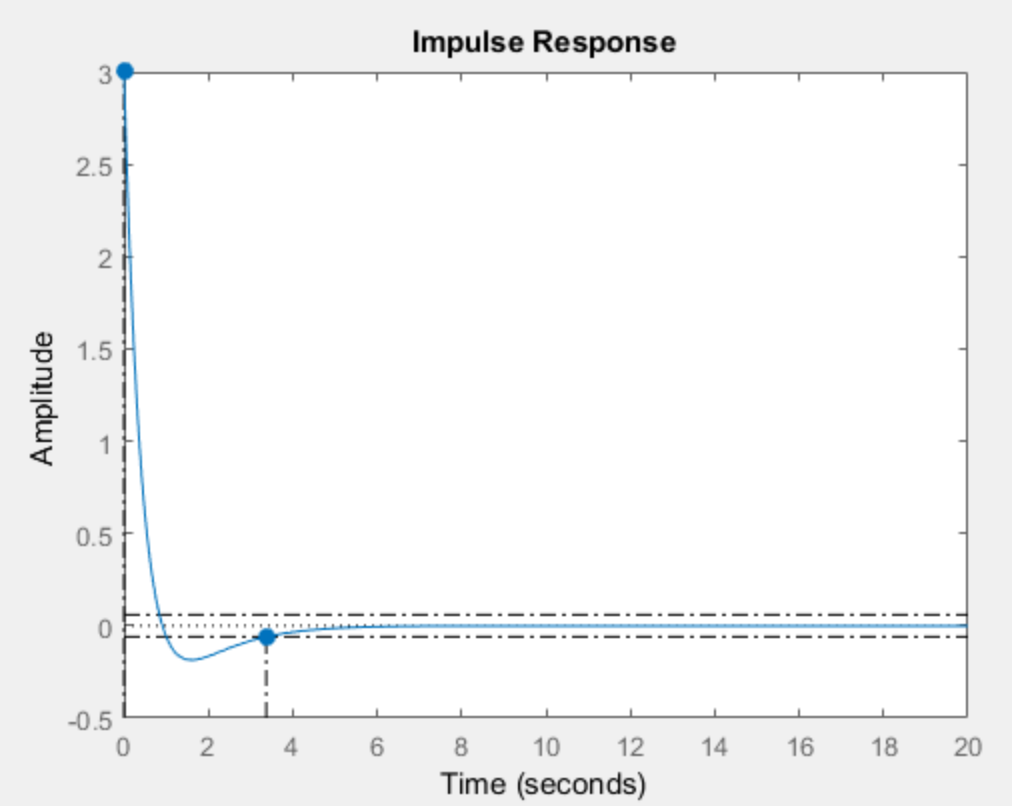

Step Response
Amplitude
Time (seconds)
0
2
4
6
8
10
12
0
2
4
6
8
10
12
14
16
18
20



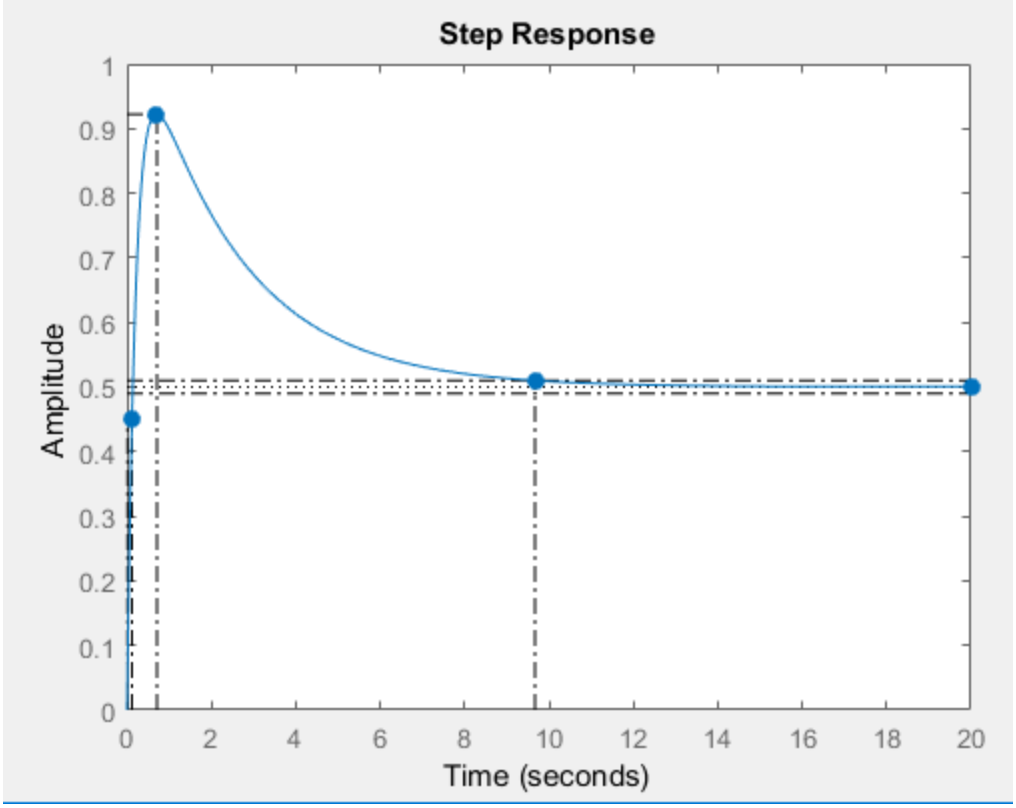

```
ans =

  struct with fields:

        RiseTime: 0.4444
    SettlingTime: 7.1994
     SettlingMin: 0.4181
     SettlingMax: 0.8082
       Overshoot: 61.6324
      Undershoot: 0
            Peak: 0.8082
        PeakTime: 1.4234
```

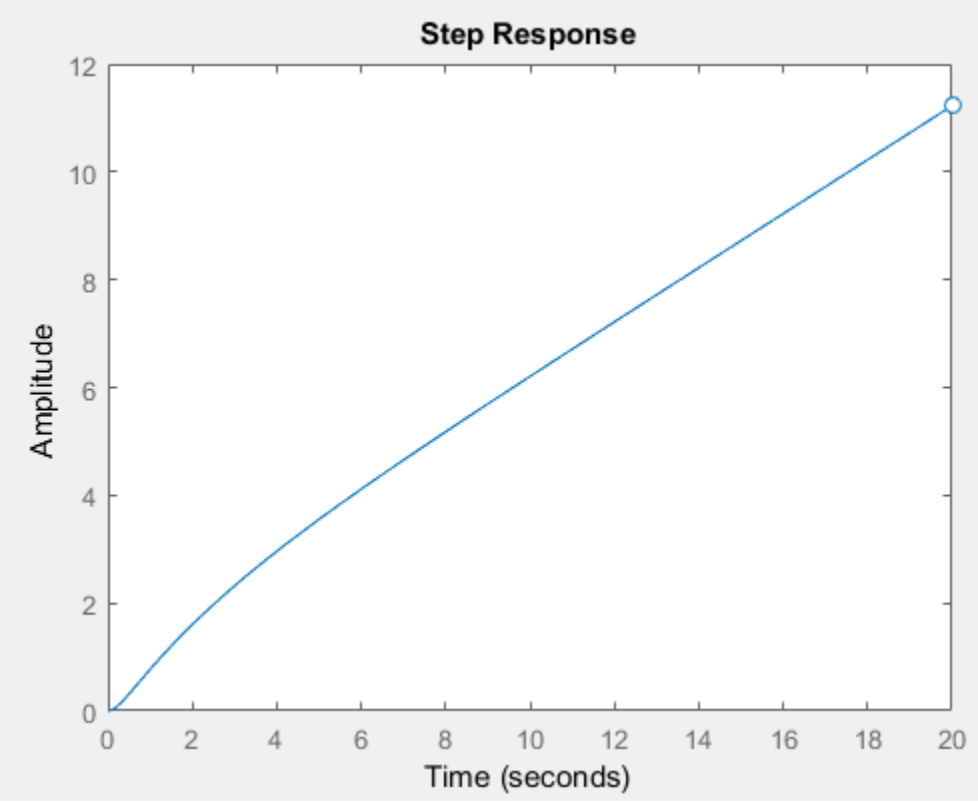

Step Response
Amplitude
Time (seconds)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
0
2
4
6
8
10
12
14
16
18
20

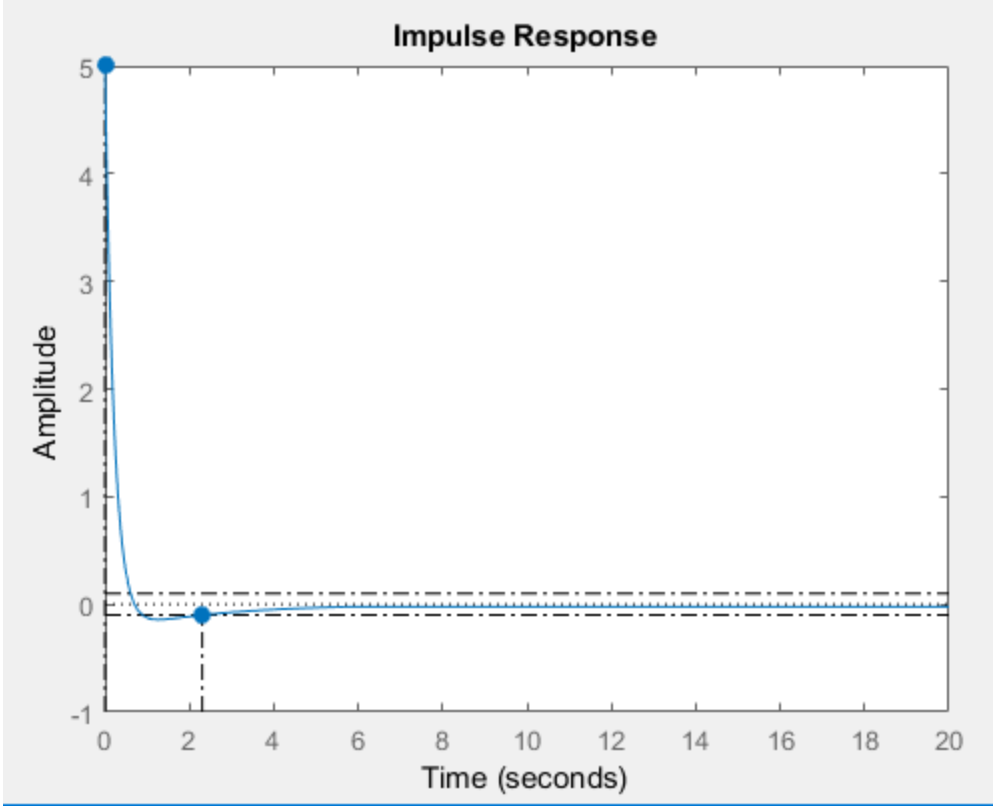

Step Response
Amplitude
Time (seconds)
0
2
4
6
8
10
12
0
2
4
6
8
10
12
14
16
18
20



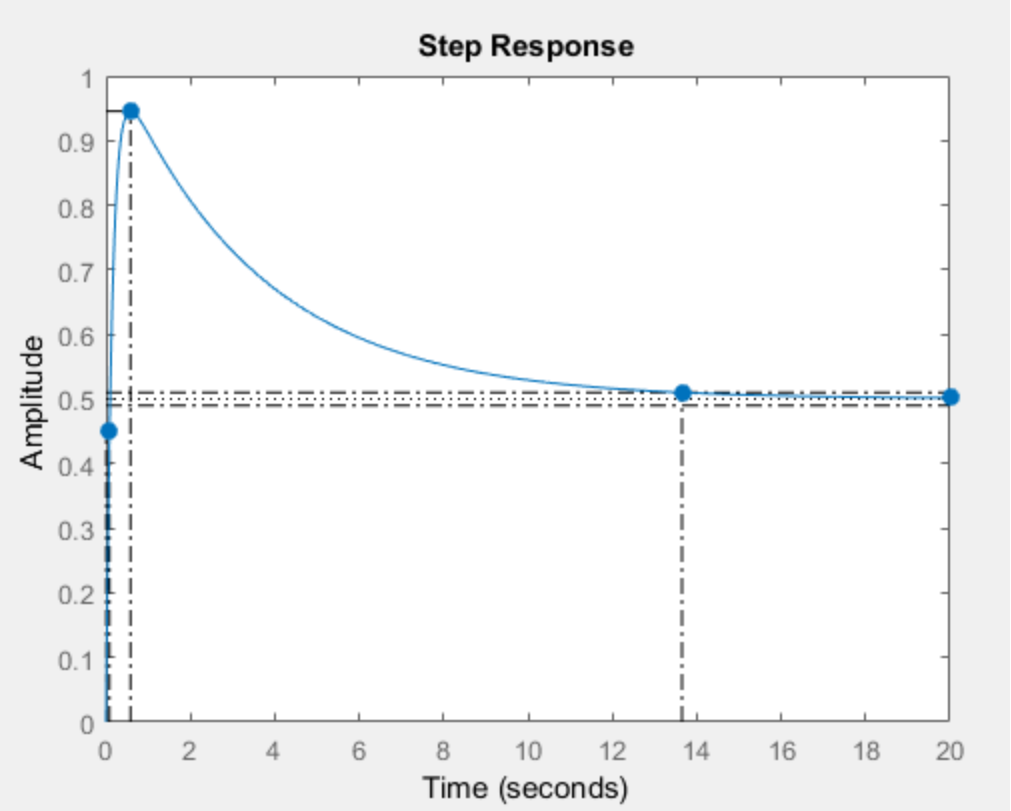

```
ans =

  struct with fields:

        RiseTime: 0.1785
    SettlingTime: 5.4740
     SettlingMin: 0.4755
     SettlingMax: 0.8790
       Overshoot: 75.7960
      Undershoot: 0
            Peak: 0.8790
        PeakTime: 0.9276
```

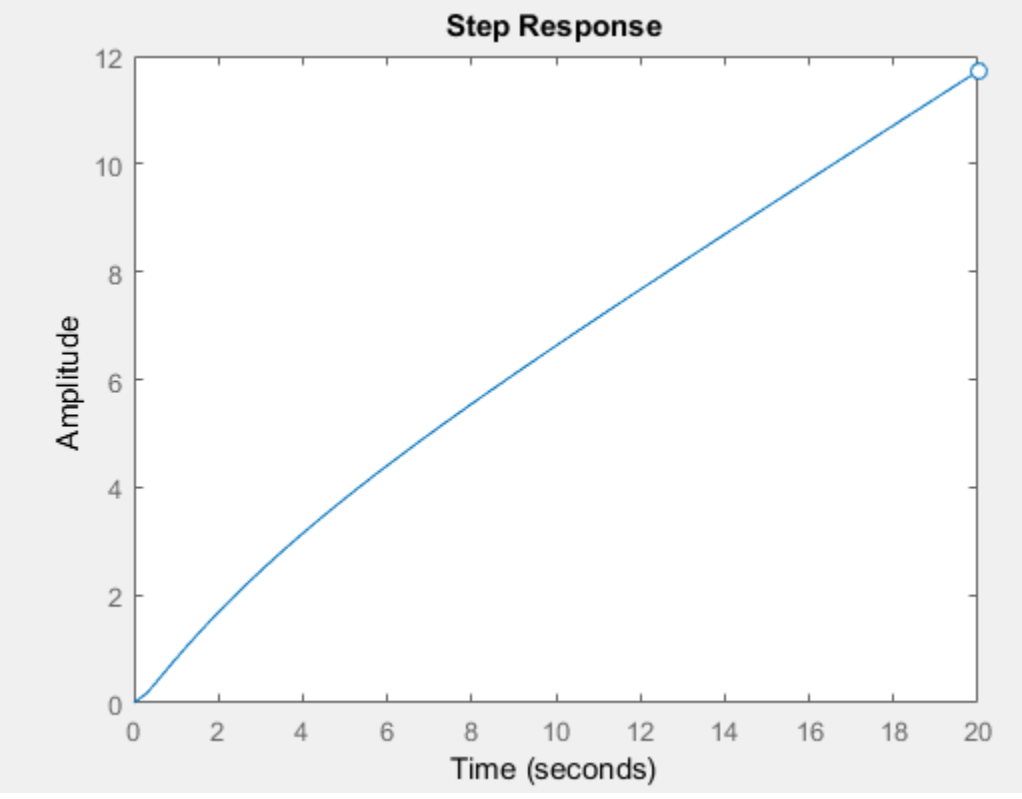

Step Response
Amplitude
Time (seconds)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
2
4
6
8
10
12
14
16
18
20

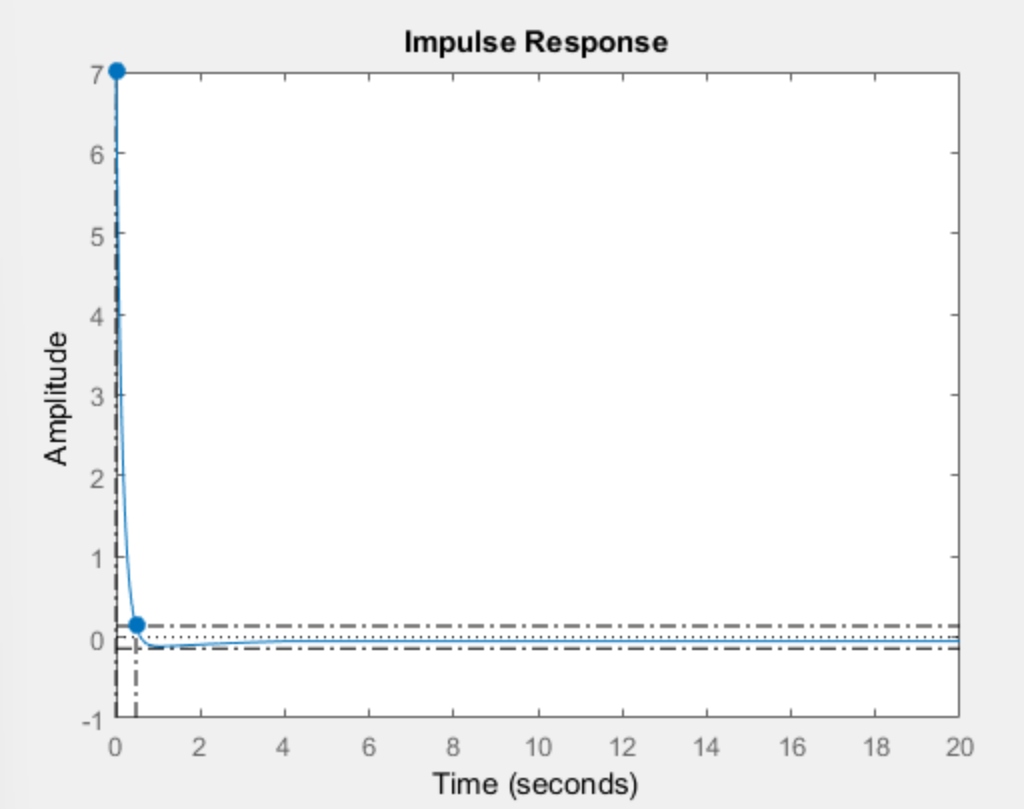

Step Response
Amplitude
Time (seconds)
0
2
4
6
8
10
12
0
2
4
6
8
10
12
14
16
18
20



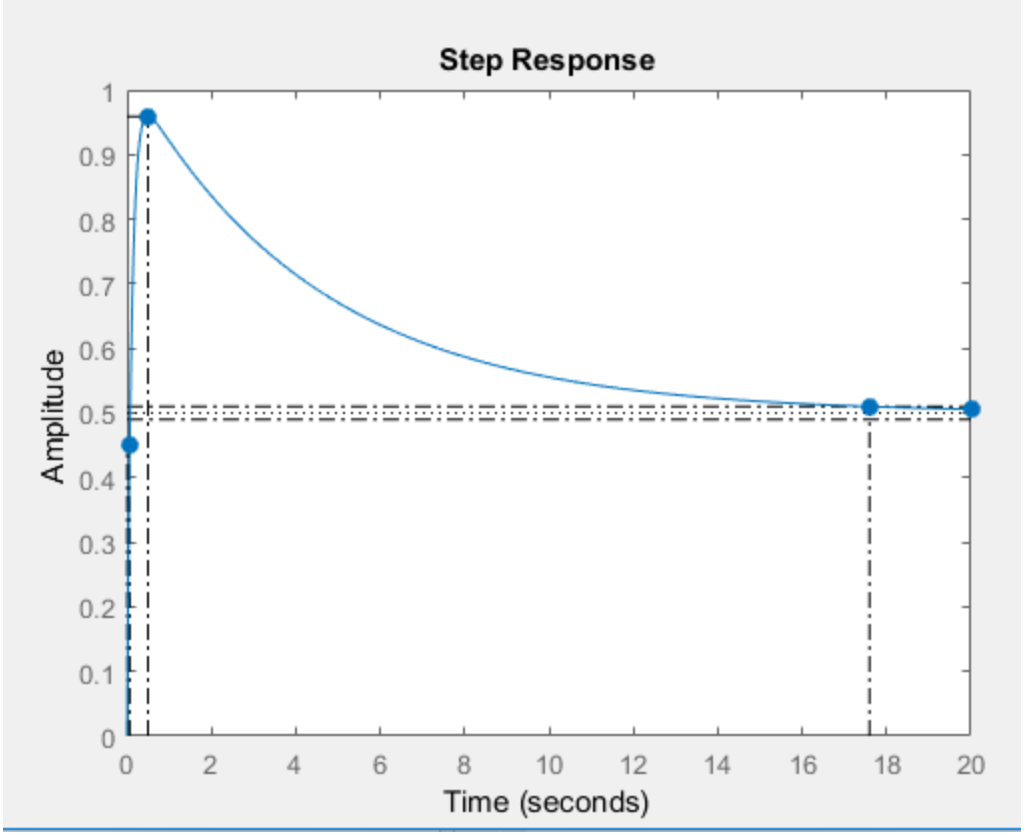

```
ans =

  struct with fields:

        RiseTime: 0.1086
    SettlingTime: 9.6698
     SettlingMin: 0.4999
     SettlingMax: 0.9223
       Overshoot: 84.4653
      Undershoot: 0
            Peak: 0.9223
        PeakTime: 0.7097
```

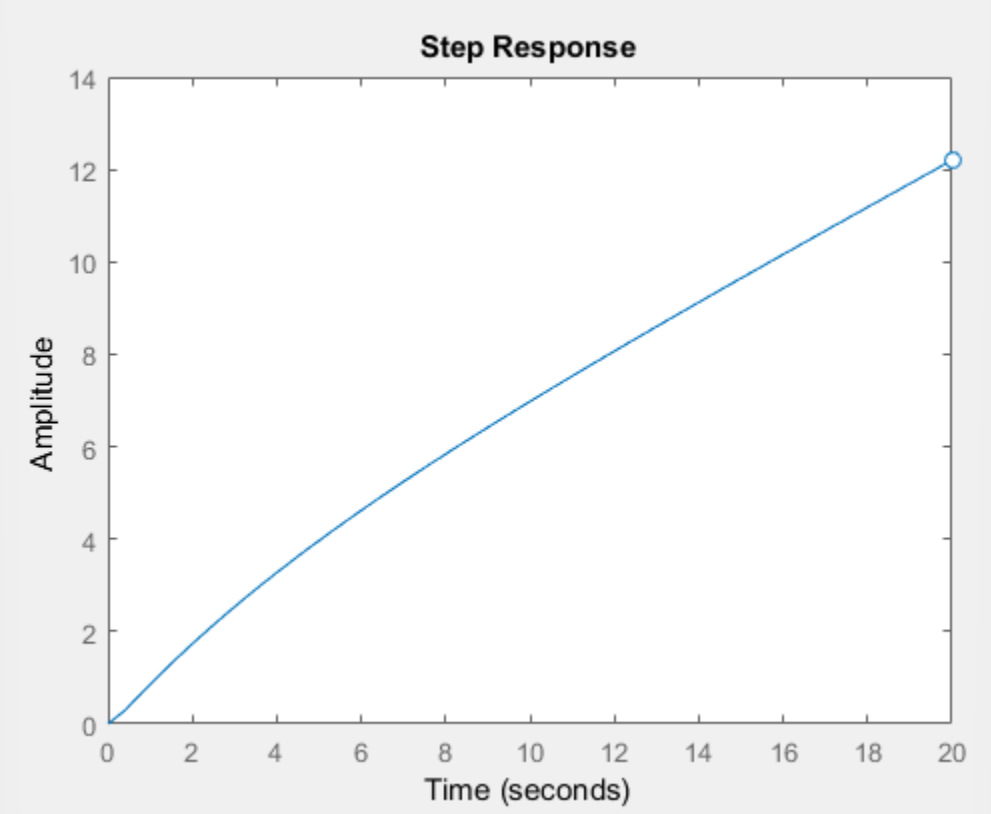

Step Response
Amplitude
Time (seconds)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
2
4
6
8
10
12
14
16
18
20

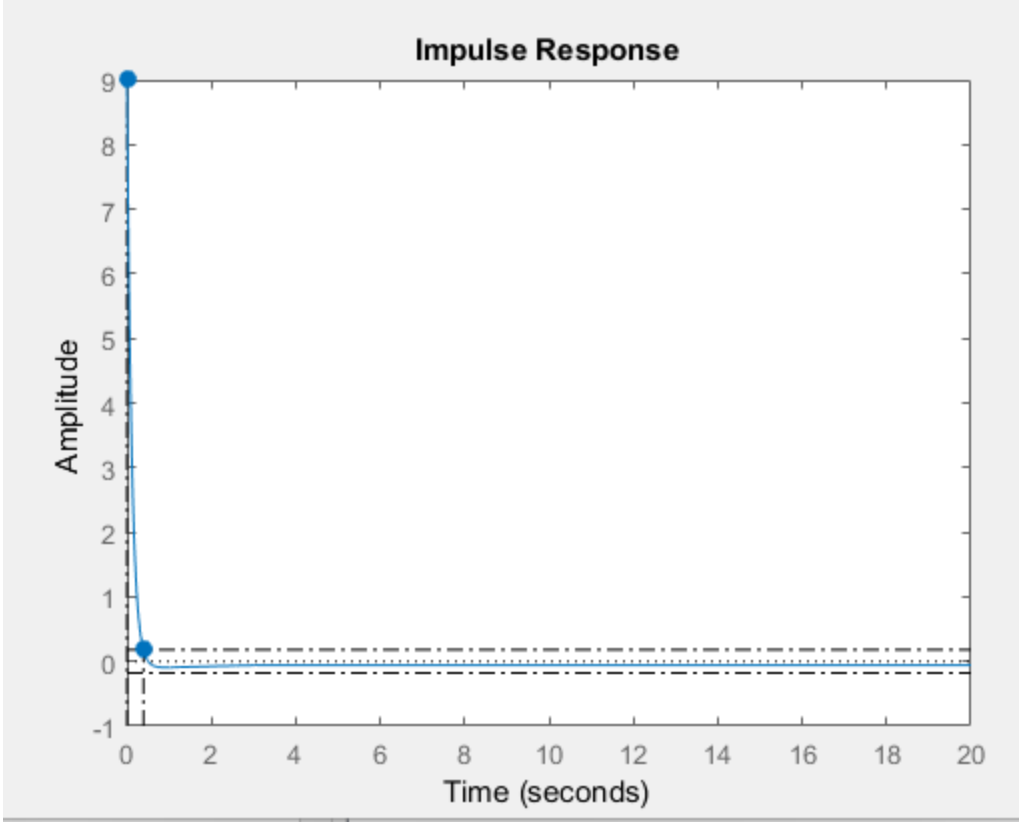

Step Response
Amplitude
Time (seconds)
0
2
4
6
8
10
12
0
2
4
6
8
10
12
14
16
18
20




```
ans =

  struct with fields:

        RiseTime: 0.0780
    SettlingTime: 13.6516
     SettlingMin: 0.4849
     SettlingMax: 0.9455
       Overshoot: 89.0934
      Undershoot: 0
            Peak: 0.9455
        PeakTime: 0.5819
```


Step Response
Amplitude
Time (seconds)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
2
4
6
8
10
12
14
16
18
20


Step Response
Amplitude
Time (seconds)
0
2
4
6
8
10
12
14
0
2
4
6
8
10
12
14
16
18
20




```
ans =

  struct with fields:

       RiseTime: 0.0608
   SettlingTime: 17.5967
    SettlingMin: 0.4797
    SettlingMax: 0.9591
      Overshoot: 91.8298
     Undershoot: 0
           Peak: 0.9591
       PeakTime: 0.4982
```