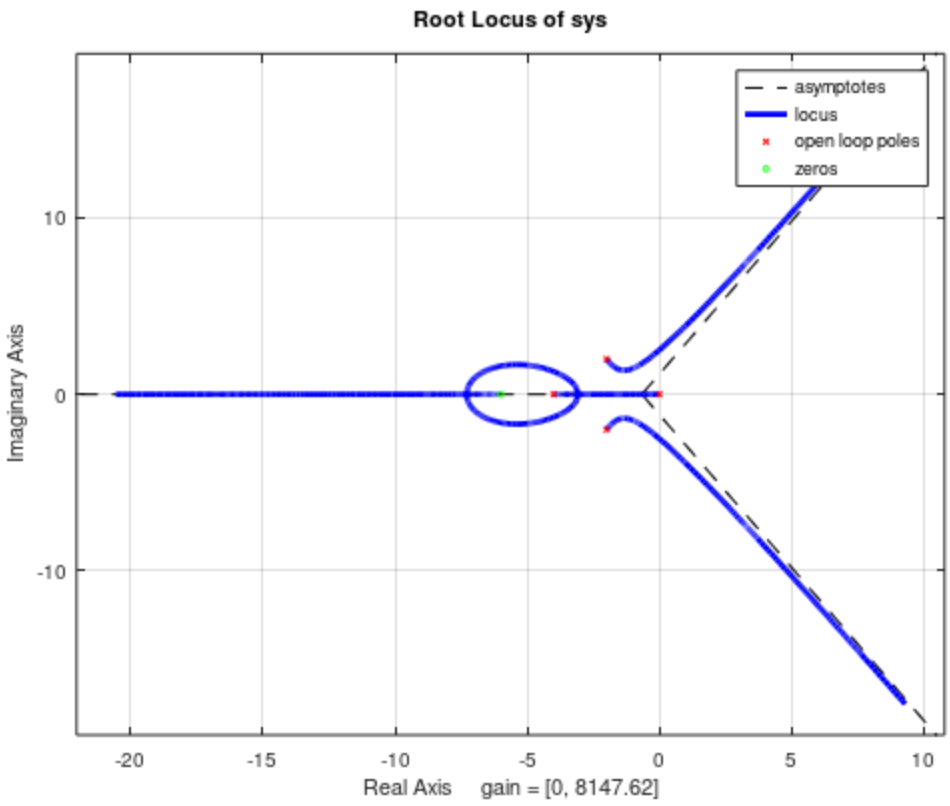
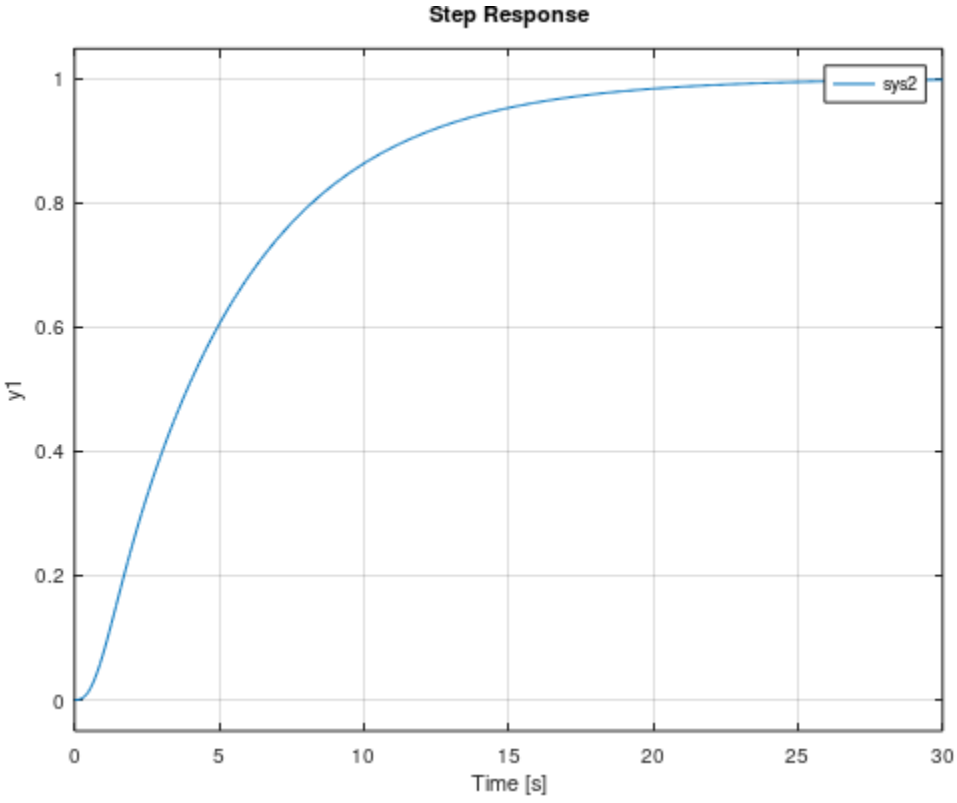
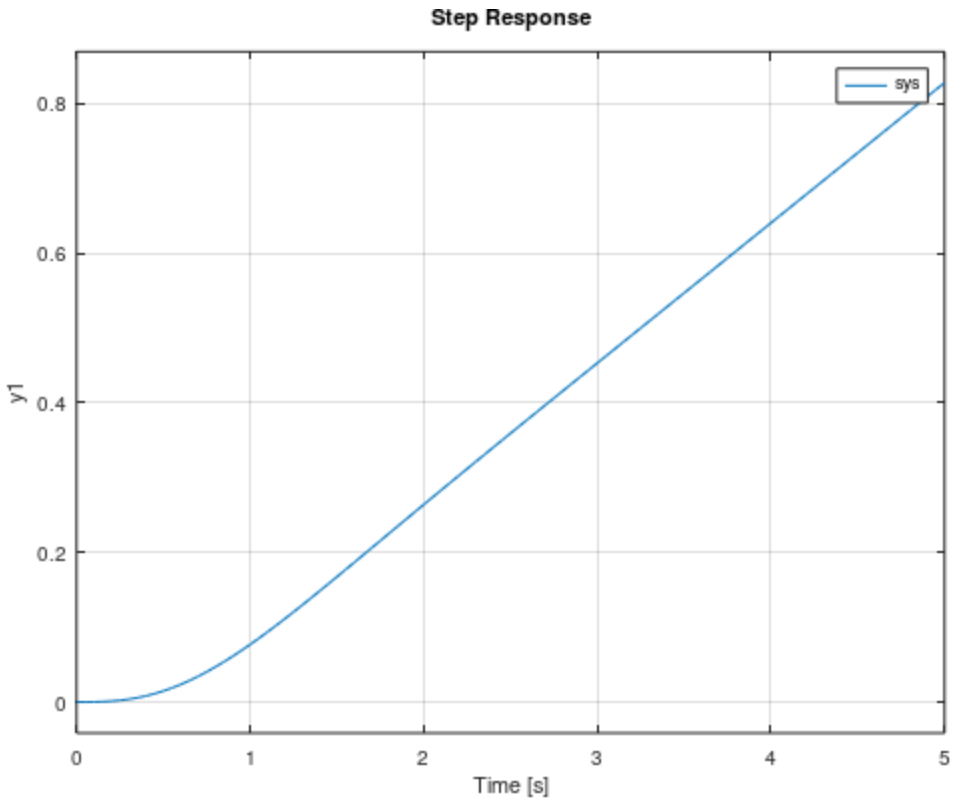
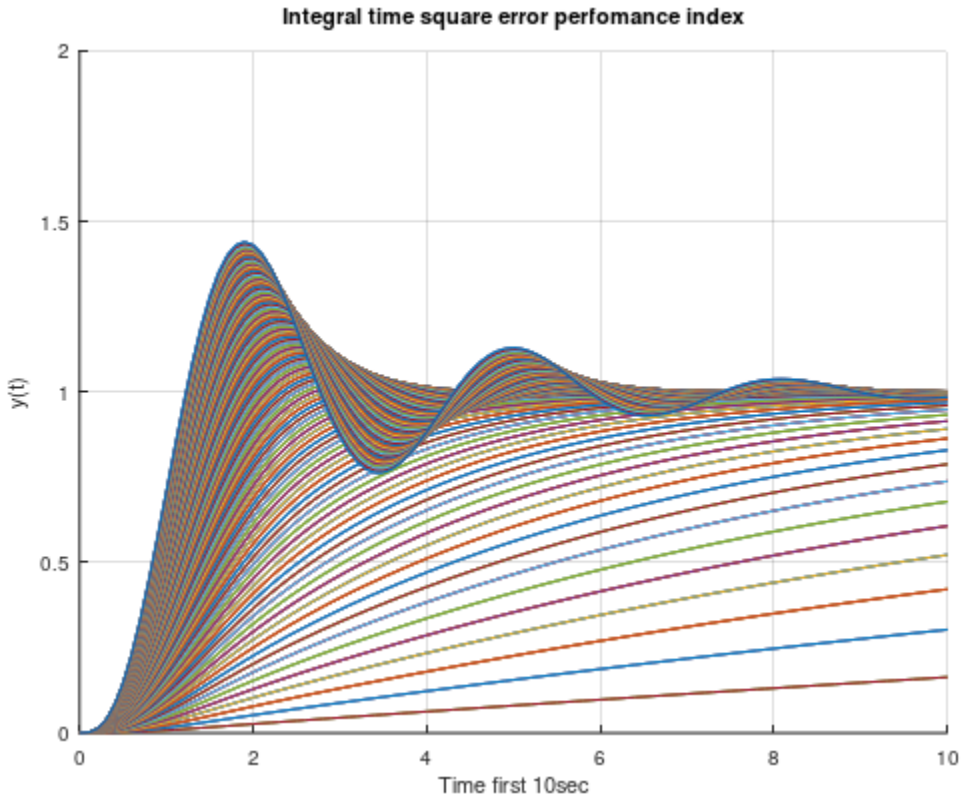
```
Transfer function 'sys2' from input 'ul' to output ...

                  s + 6
 yl:  --------------------------------
      s^4 + 8 s^3 + 24 s^2 + 33 s + 6

Continuous-time model.
Gm = 18.642
Gml = 17.642
gc = (sym)

         4      3       2
  6*K + s  + 8*s  + 24*s  + s*(K + 32)

ts = (sym)

               K*(s + 6)
  -------------------------------------
         4      3       2
  6*K + s  + 8*s  + 24*s  + s*(K + 32)

RHf = (sym 5x3 matrix)

  [        1             24    6*K]
  [                             ]
  [        8          K + 32   0 ]
  [                             ]
  [          K                  ]
  [     20 - -          6*K     0 ]
  [          8                  ]
  [                             ]
  [ 2                           ]
  [K  + 256*K - 5120            ]
  [-----------------    0       0 ]
  [     K - 160                 ]
  [                             ]
  [       6*K           0       0 ]

RHf_1 = (sym 5x3 matrix)

RHf_1 = (sym 5x3 matrix)

  [        1          5*K + 17   6*K]
  [                              ]
  [        8          17*K + 10   0 ]
  [                              ]
  [          K                   ]
  [     20 - -           6*K      0 ]
  [          8                   ]
  [                              ]
  [ 2                            ]
  [K  + 256*K - 5120             ]
  [-----------------      0       0 ]
  [     K - 160                  ]
  [                              ]
  [       6*K             0       0 ]

K_1 = (sym) 160.000000000000000000000000000000
K_2 = (sym) 18.642422238586880210817510199296
K_3 = (sym) 0
```

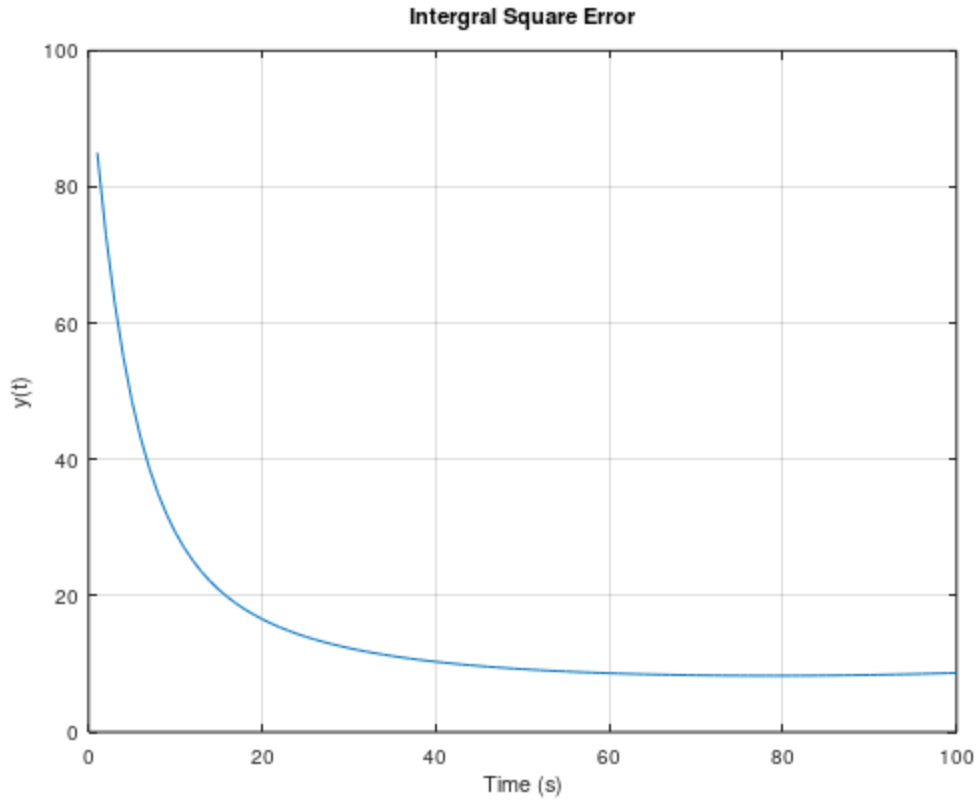
```
K_1 =

   594.6515
     5.0135

p =

  -3.9320 +      0i
  -1.9278 + 1.8626i
  -1.9278 - 1.8626i
  -0.2124 +      0i

p1 =

  -4.0000 +      0i
  -2.0000 + 2.0000i
  -2.0000 - 2.0000i
        0 +      0i

K =

   593.6515
     4.0135

Transfer function 'G' from input 'u1' to output ...

                s + 6
 y1:  --------------------------
      s^4 + 8 s^3 + 24 s^2 + 32 s

Continuous-time model.
Ys1 = 0.8261
Ts1 = 79

Transfer function 'opt' from input 'u1' to output ...

                  7.9 s + 47.4
 y1:  ----------------------------------
      s^4 + 8 s^3 + 24 s^2 + 39.9 s + 47.4

Continuous-time model.
```

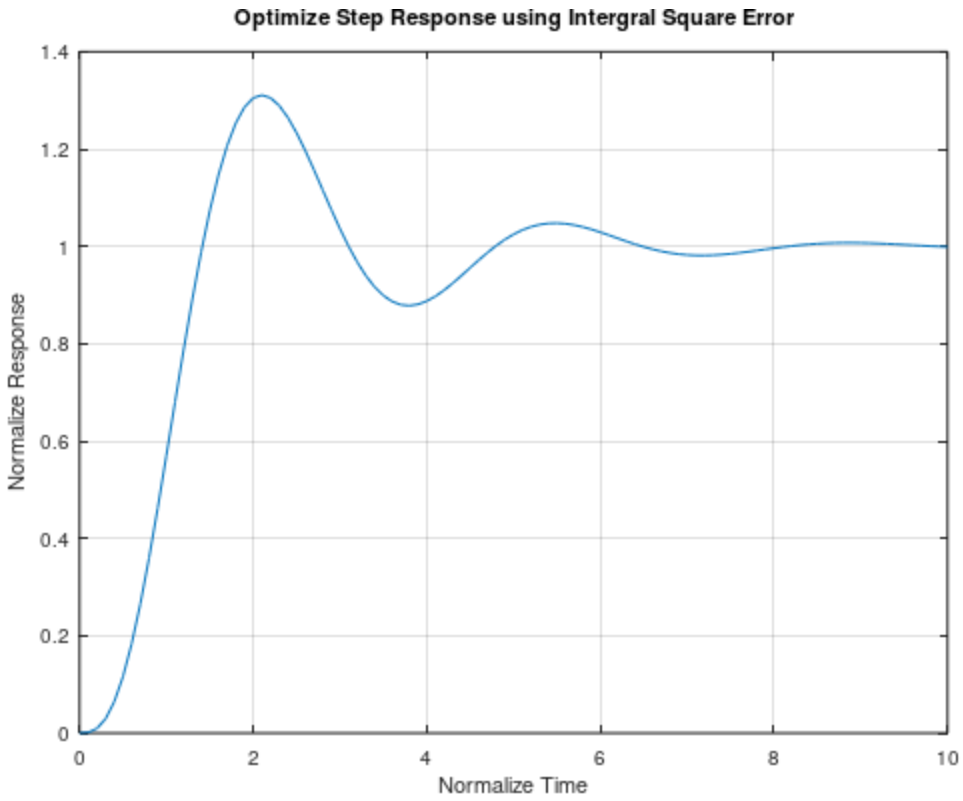

Root Locus of sys
asymptotes
locus
open loop poles
zeros
Imaginary Axis
Real Axis
gain = [0, 8147.62]
10
0
-10
-20
-15
-10
-5
0
5
10

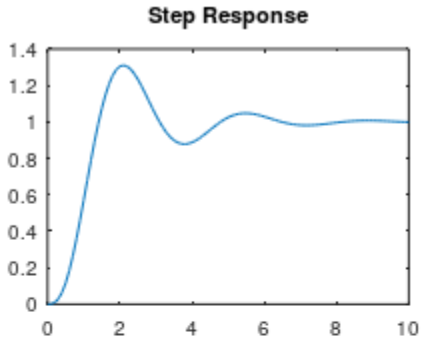

Step Response
sys2
y1
Time [s]
1
0.8
0.6
0.4
0.2
0
0
5
10
15
20
25
30

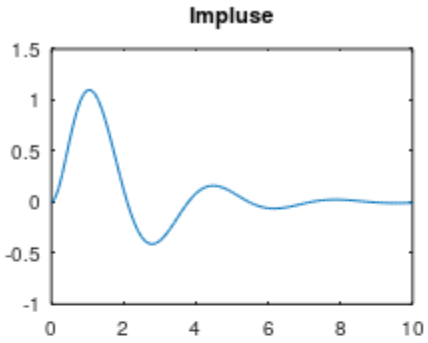

Step Response
sys
0.8
0.6
0.4
0.2
0
y1
0
1
2
3
4
5
Time [s]

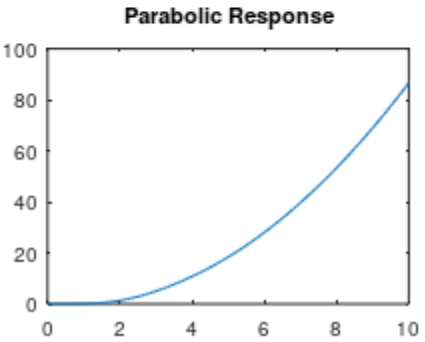

Integral time square error perfomance index
2
1.5
1
0.5
0
y(t)
0
2
4
6
8
10
Time first 10sec

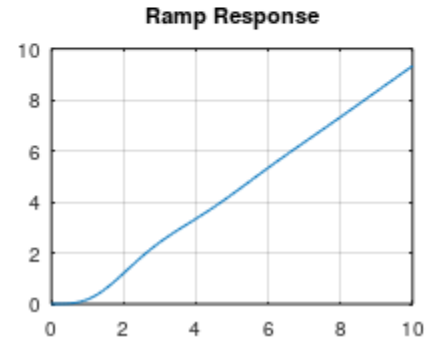

Intergral Square Error
100
80
60
40
20
0
y(t)
0
20
40
60
80
100
Time (s)


Optimize Step Response using Intergral Square Error
Normalize Response
Normalize Time
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
2
4
6
8
10


Step Response
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
2
4
6
8
10


Impluse
-1
-0.5
0
0.5
1
1.5
0
2
4
6
8
10


Parabolic Response
0
20
40
60
80
100
0
2
4
6
8
10


Ramp Response
0
2
4
6
8
10
0
2
4
6
8
10