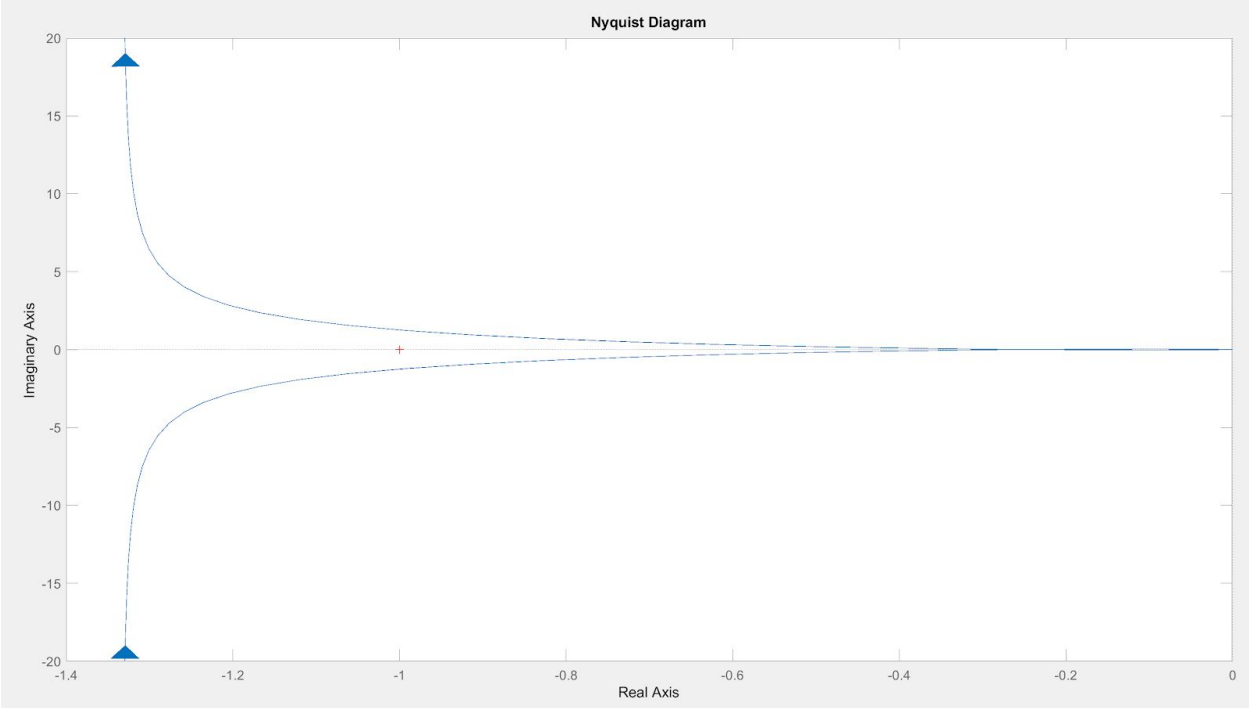
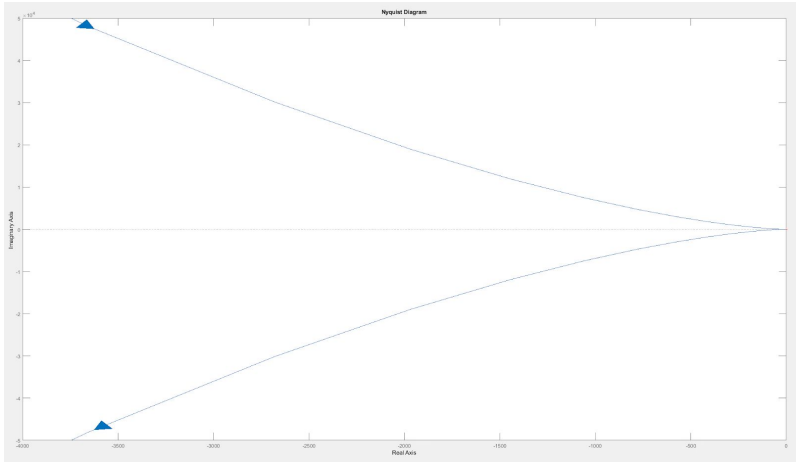
2.

a)

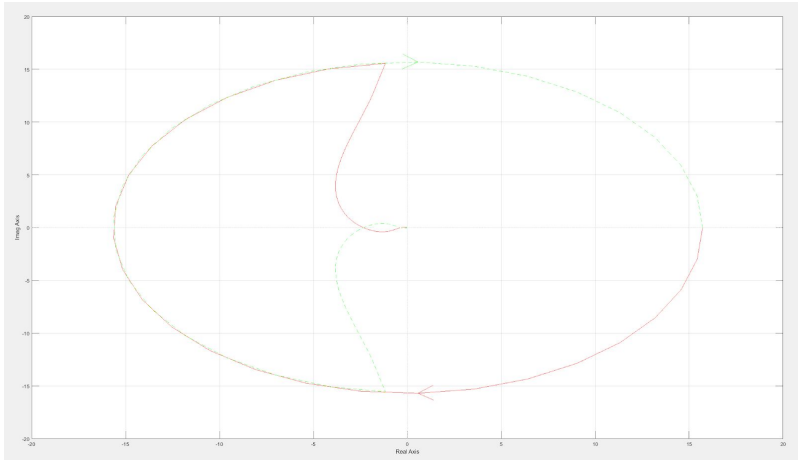

Nyquist Diagram
Imaginary Axis
Real Axis
20
15
10
5
0
-5
-10
-15
-20
-1.4
-1.2
-1
-0.8
-0.6
-0.4
-0.2
0

3.

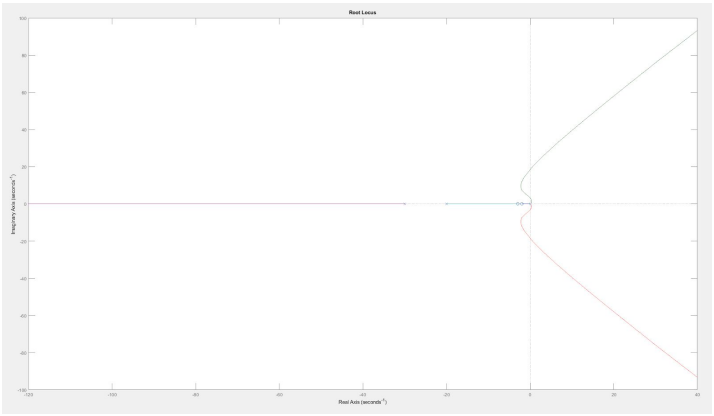
a)

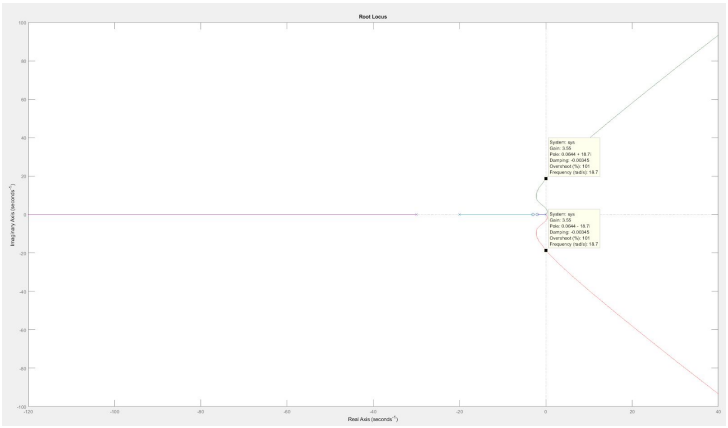

Nyquist Diagram
Imaginary Axis
Real Axis

b)


Imag Axis
Real Axis

d)

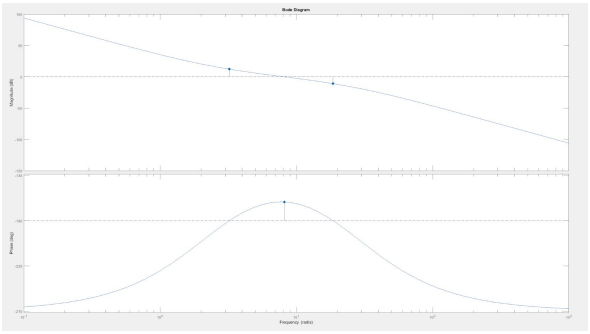





```
>> [k,p] = rlocfind(sys)
Select a point in the graphics window

selected_point =

   0.3791 -18.5759i


k =

    3.5622


p =

 -44.5268 + 0.0000i
   0.0449 +18.7065i
   0.0449 -18.7065i
  -3.7188 + 0.0000i
  -1.8442 + 0.0000i
```

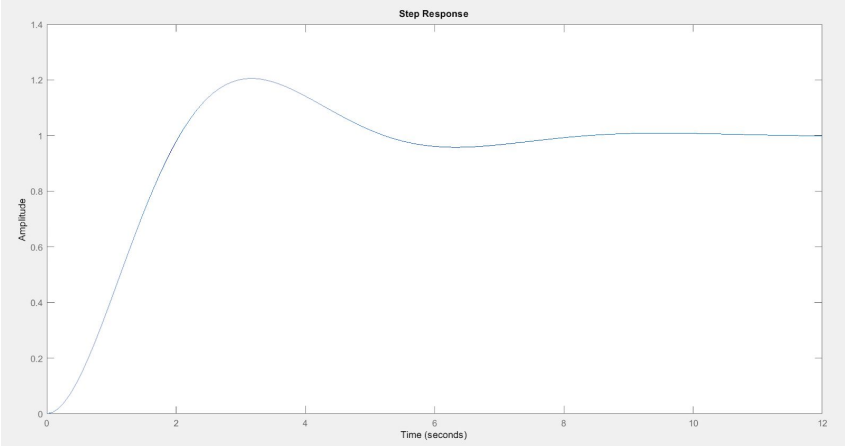
```
>> [k,p] = rlocfind(sys)
Select a point in the graphics window

selected_point =

   0.0406 +18.8818i


k =

    3.6214


p =

 -44.6547 + 0.0000i
   0.1034 +18.8574i
   0.1034 -18.8574i
  -3.7059 + 0.0000i
  -1.8461 + 0.0000i
```

e)



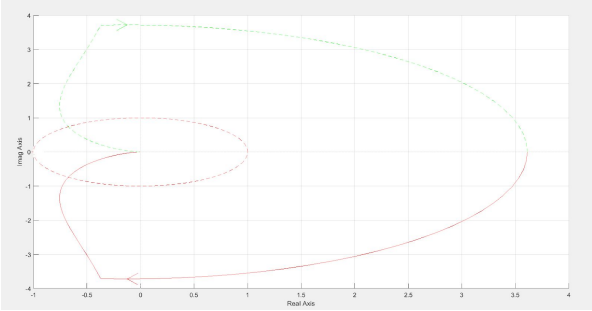
4.

c)



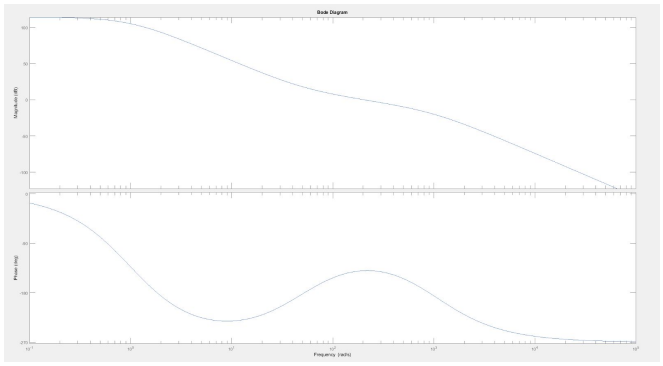

```
>> stepinfo(H)

ans =

  struct with fields:

        RiseTime: 1.3933
    SettlingTime: 7.5106
     SettlingMin: 0.9071
     SettlingMax: 1.2052
       Overshoot: 20.5180
      Undershoot: 0
            Peak: 1.2052
        PeakTime: 3.1315

>> [w,z] = damp(H)

w =
         0
    1.0000
    1.1111
    1.1111
z =
   -1.0000
    1.0000
    0.4500
    0.4500
```

d)

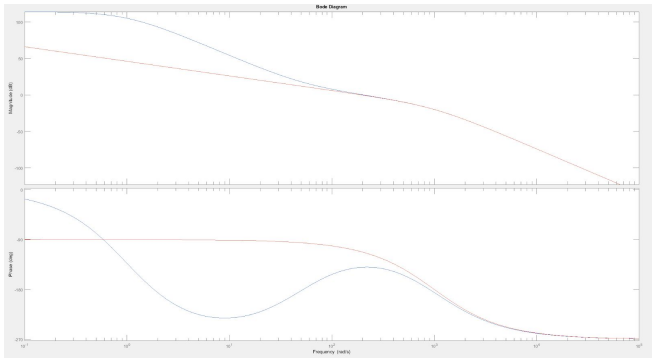


5.

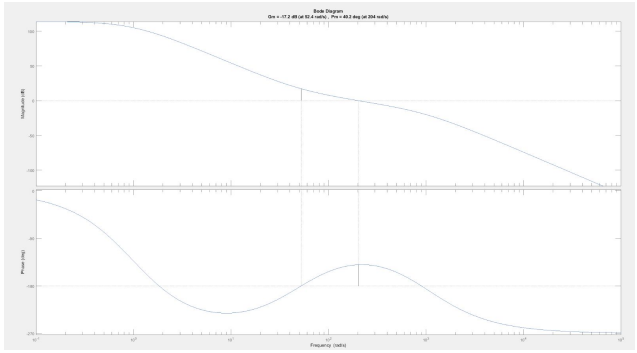
a)

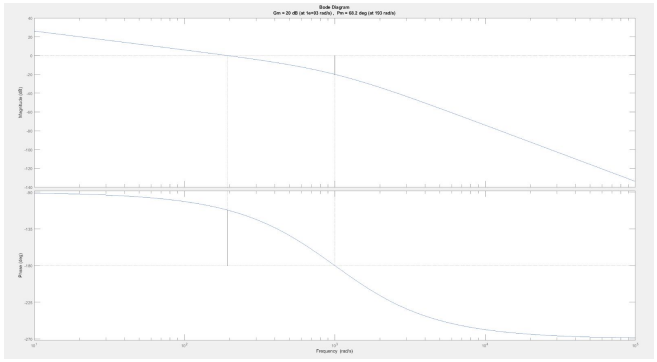

Bode Diagram
Magnitude (dB)
Phase (deg)
Frequency (rad/s)

c)

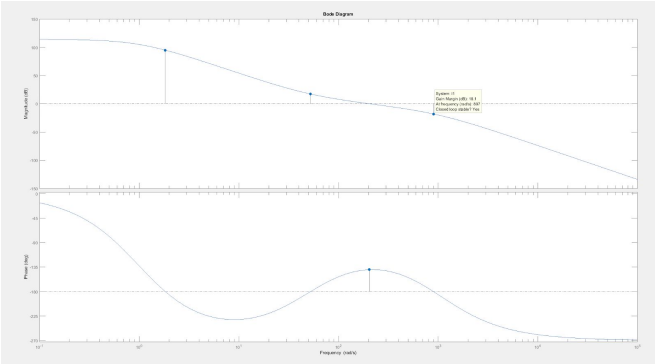

Bode Diagram
Magnitude (dB)
Phase (deg)
Frequency (rad/s)

d)

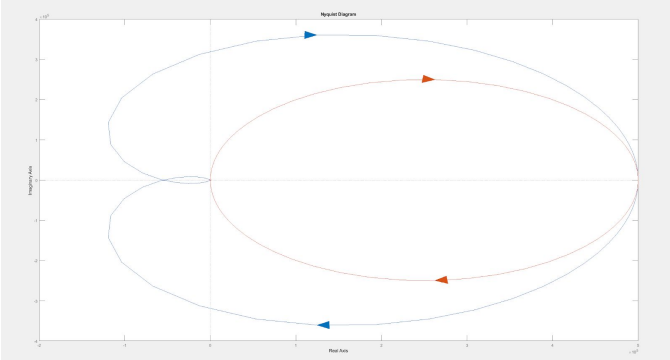

Bode Diagram
Magnitude (dB)
Phase (deg)
Frequency (rad/s)

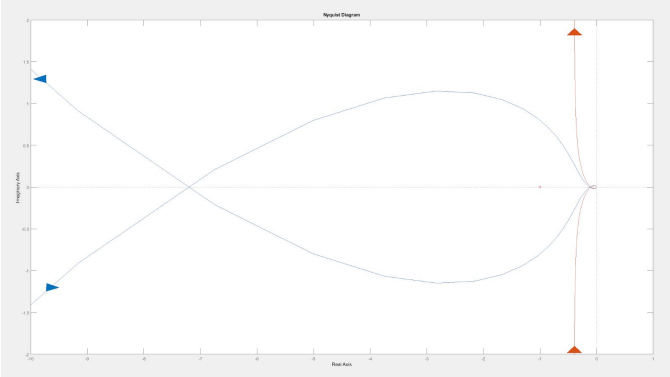

Bode Diagram
Magnitude (dB)
Phase (deg)
Frequency (rad/s)

e)


Bode Diagram
Magnitude (dB)
Phase (deg)
Frequency (rad/s)

f)


Nyquist Diagram
Imaginary Axis
Real Axis


Nyquist Diagram
Imaginary Axis
Real Axis