# Benjamin Kaplan - PS 7

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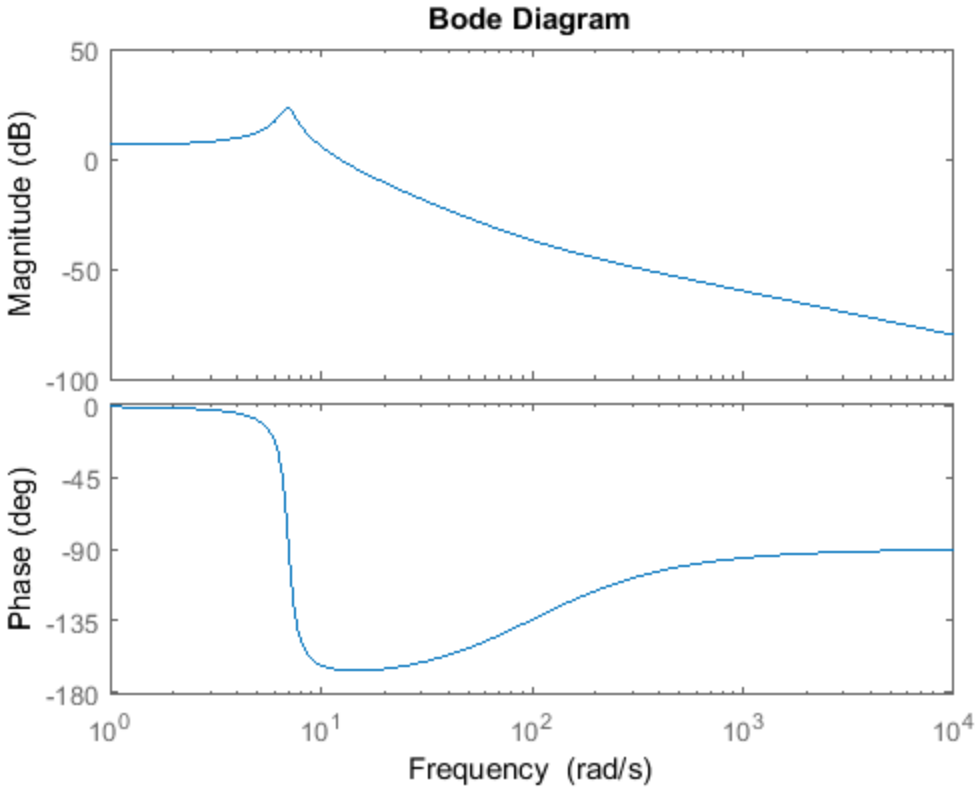
# Question 1

```
clc
clear all
close all
DCgain = 20*log10( (0+100)/(0^2 +0 + 49))
Q= 7/1

bode(tf([0 1 100],[1 1 49]))
```

```
DCgain =

    6.1961


Q =

     7
```




# Question 2

```
H = (10*j+10)*((10*j+30)^2)/((10*j+4)*(10*j+100))
angle(H)*180/pi
```

```
H =

  12.9396 + 1.8095i


ans =

    7.9607
```

# Question 5

```
figure
s1 = tf([0 1 2],[1 4.8 4])
s2 = tf([0 -1 2],[1 4.8 4])
class(s1);
get(s1);
%[y1 t1] = step(s1); % y1 is the magnitude response of s1
%[y2 t2] = step(s2); % y2 is the magnitude response of s2
```

```
hold on
step(s1,s2); % unit step response of s1 and s2
legend('s1', 's2')
text('s2 has a negative amplitude dip towards the beginning');
hold off
```

```
s1 =

       s + 2
  ---------------
  s^2 + 4.8 s + 4

Continuous-time transfer function.


s2 =

      -s + 2
  ---------------
  s^2 + 4.8 s + 4

Continuous-time transfer function.

       Numerator: {[0 1 2]}
     Denominator: {[1 4.8000 4]}
        Variable: 's'
         IODelay: 0
      InputDelay: 0
     OutputDelay: 0
              Ts: 0
        TimeUnit: 'seconds'
       InputName: {''}
       InputUnit: {''}
      InputGroup: [1x1 struct]
      OutputName: {''}
      OutputUnit: {''}
     OutputGroup: [1x1 struct]
            Name: ''
           Notes: {}
        UserData: []
    SamplingGrid: [1x1 struct]


Error using text
Invalid parameter/value pair arguments

Error in BK7 (line 27)
text('s2 has a negative amplitude dip towards the beginning');
```

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