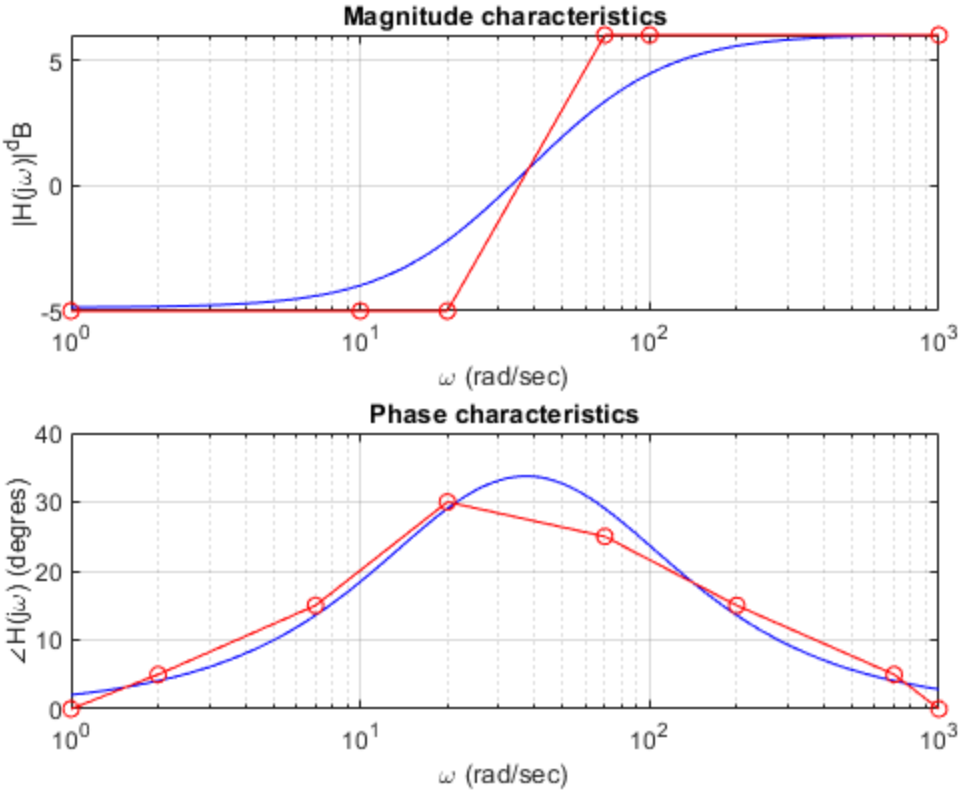
Example from the lab

```
clear;clc
% approximations for magnitude
wma=[1 10 20 70 100 1e3];
ma=[-5 -5 -5 6 6 6];
% approximations for phase
wfa=[1 2 7 20 70 200 700 1e3];fa=[0 5 15 30 25 15 5 0];
% plotting the approximations
subplot(211);semilogx(wma,ma,'ro-');grid
title('Magnitude characteristics');
xlabel('\omega (rad/sec)');ylabel('|H(j\omega)|^dB');
subplot(212);semilogx(wfa,fa,'ro-');grid;shg;
title('Phase characteristics');ylabel('\angleH(j\omega) (degres)');


% comparison with Bode in Matlab
h=tf(2*[1 20],[1 70]);w=logspace(0,3,1e2);
[m,f]=bode(h, w);
mv(1:1e2,1)=m(:,:,:);fv(1:1e2,1)=f(:,:,:);
subplot(211);semilogx(w,20*log10(mv),'b',wma,ma,'ro-');grid
title('Magnitude characteristics');
xlabel('\omega (rad/sec)');ylabel('|H(j\omega)|^dB');
subplot(212);semilogx(w,fv,'b',wfa,fa,'ro-');grid;shg;
title('Phase characteristics');
xlabel('\omega (rad/sec)'); ylabel('\angleH(j\omega) (degres)');
```



Exemplul B

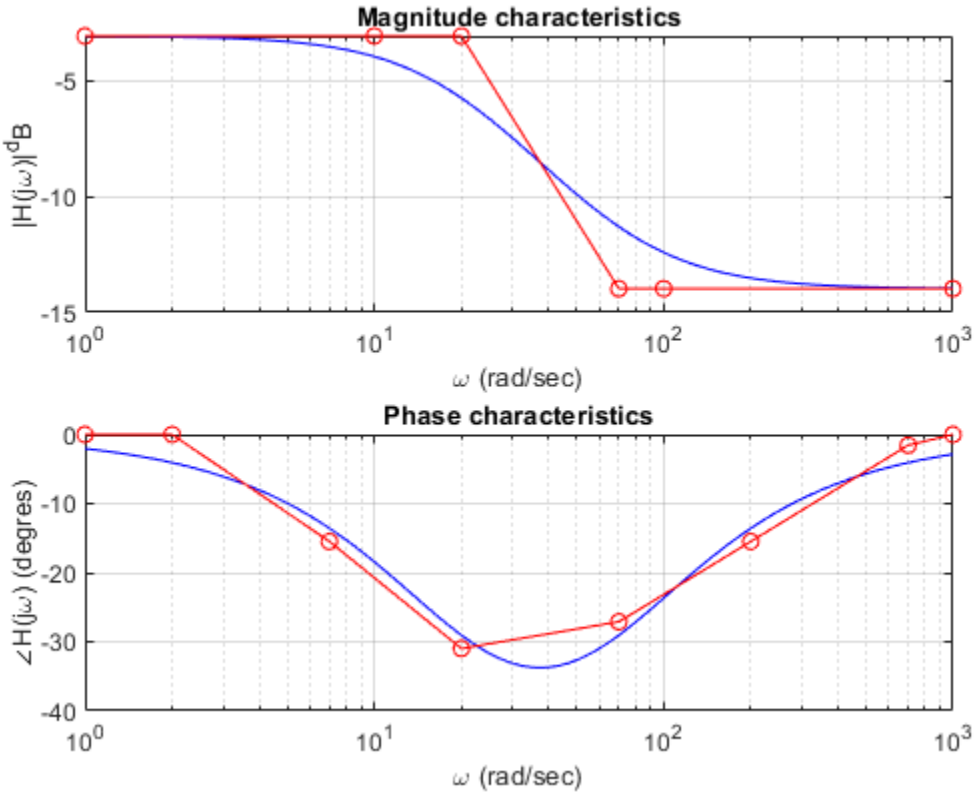
H(s)=7/10*(1/70*s+1)/(1/20*s+1) w1=20(+20db) si w2=70(-20db) approximations for magnitude

```
wma=[1 10 20 70 100 1e3];

m1=20*log10(7/10);
m2=m1+20*log10(7/10)*0;
m3=m2+20*log10(7/10)*0;
m4=-20*log10(7/2)+20*log10(7/10);
m5=m4+0*log10(7/10);
m6=m5+0*log10(7/10);
ma=[m1 m2 m3 m4 m5 m6];
% approximations for phase
wfa=[1 2 7 20 70 200 700 1e3];
f1=0;
f2=f1+20*log(7/10)*0;
f3=f2+20*log10(7/10)*5;
f4=f3+20*log10(7/10)*5;
f5=f4-log10(7/10)*25;
f6=f5-log10(7/10)*75;
f7=f6-log10(7/10)*90;
fa=[f1 f2 f3 f4 f5 f6 f7 f1];
% plotting the approximations
subplot(211);semilogx(wma,ma,'ro-');grid
title('Magnitude characteristics');
```

```
xlabel('\omega (rad/sec)');ylabel('|H(j\omega)|^dB');
subplot(212);semilogx(wfa,fa,'ro-');grid;shg;
title('Phase characteristics');ylabel('\angleH(j\omega) (degres)');


% comparison with Bode in Matlab
h=tf(0.2*[1 70],[1 20]);w=logspace(0,3,1e2);
[m,f]=bode(h, w);
mv(1:1e2,1)=m(:,:,:);fv(1:1e2,1)=f(:,:,:);
subplot(211);semilogx(w,20*log10(mv),'b',wma,ma,'ro-');grid
title('Magnitude characteristics');
xlabel('\omega (rad/sec)');ylabel('|H(j\omega)|^dB');
subplot(212);semilogx(w,fv,'b',wfa,fa,'ro-');grid;shg;
title('Phase characteristics');
xlabel('\omega (rad/sec)'); ylabel('\angleH(j\omega) (degres)')
```



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