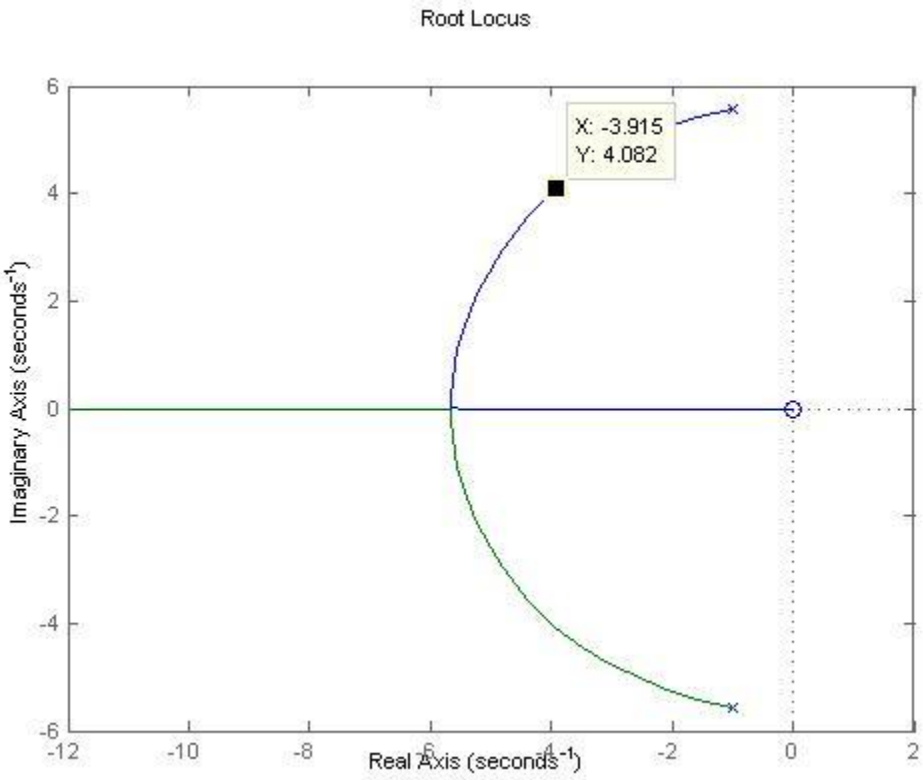
Control Systems Engineering (EC 3104) MATLAB Assignment Codes:

4) ***Code:***

```
rlocus([0 32 0],[1 2 32]);
```

Figure:



9) Code:

```
p1=[-1.74,-0.03879];
p2=[0,-1,-10,-11.511,-0.005];
cof1=poly(p1);
cof2=poly(p2);
rlocus((426.32*cof1),cof2); %[1,1.77879000000000,0.0674946000000000;]
cof3=(426.32*cof1);
cof4=[1,22.5160000000000,136.733555000000,(115.793105000000+(1*426.32)),(0.57
5550000000000+(426.32*1.77879000000000)),(426.32*0.0674946000000000)];
step(cof3,cof4);
```

Figure 1: Root Locus of the required transfer function:

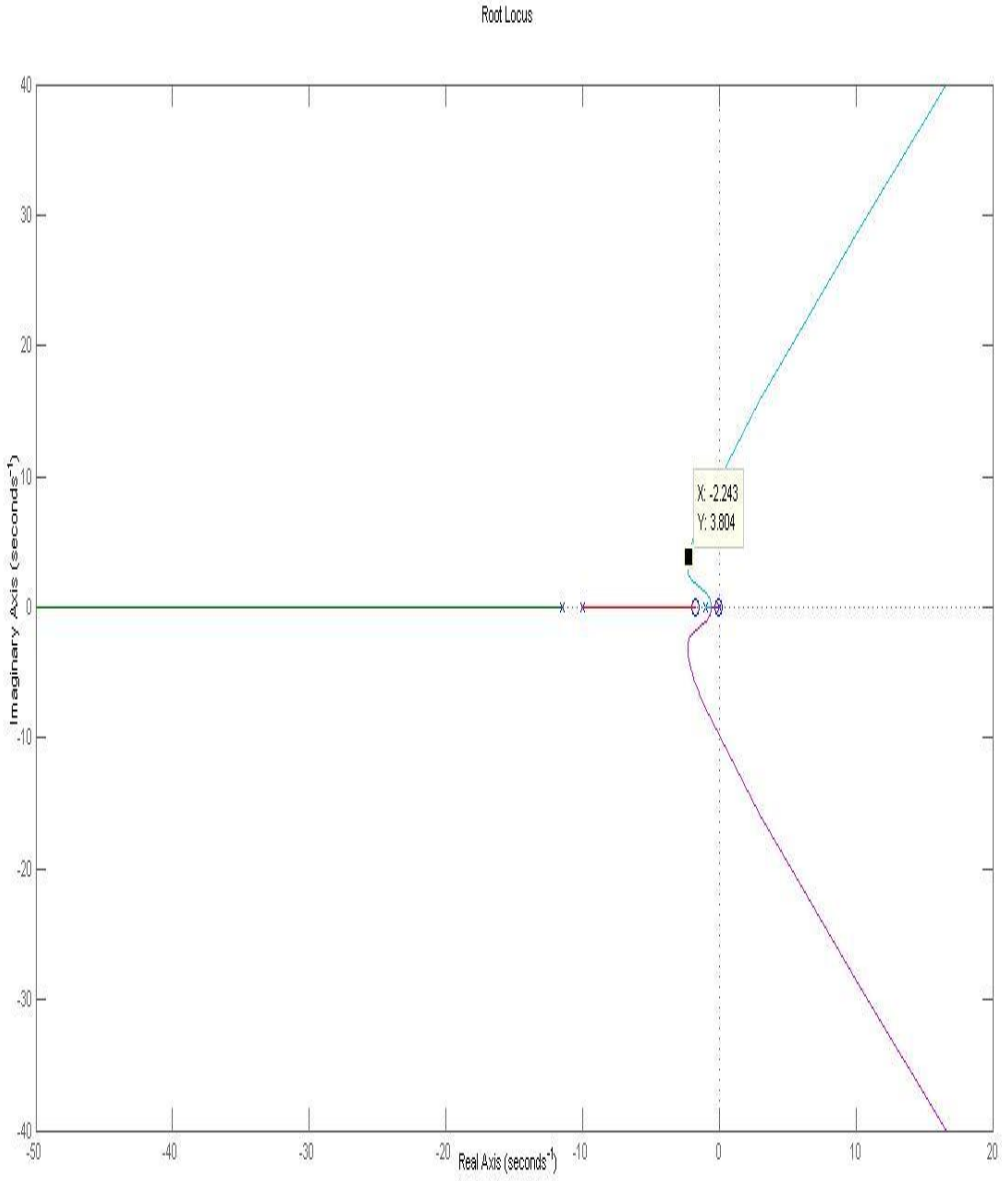
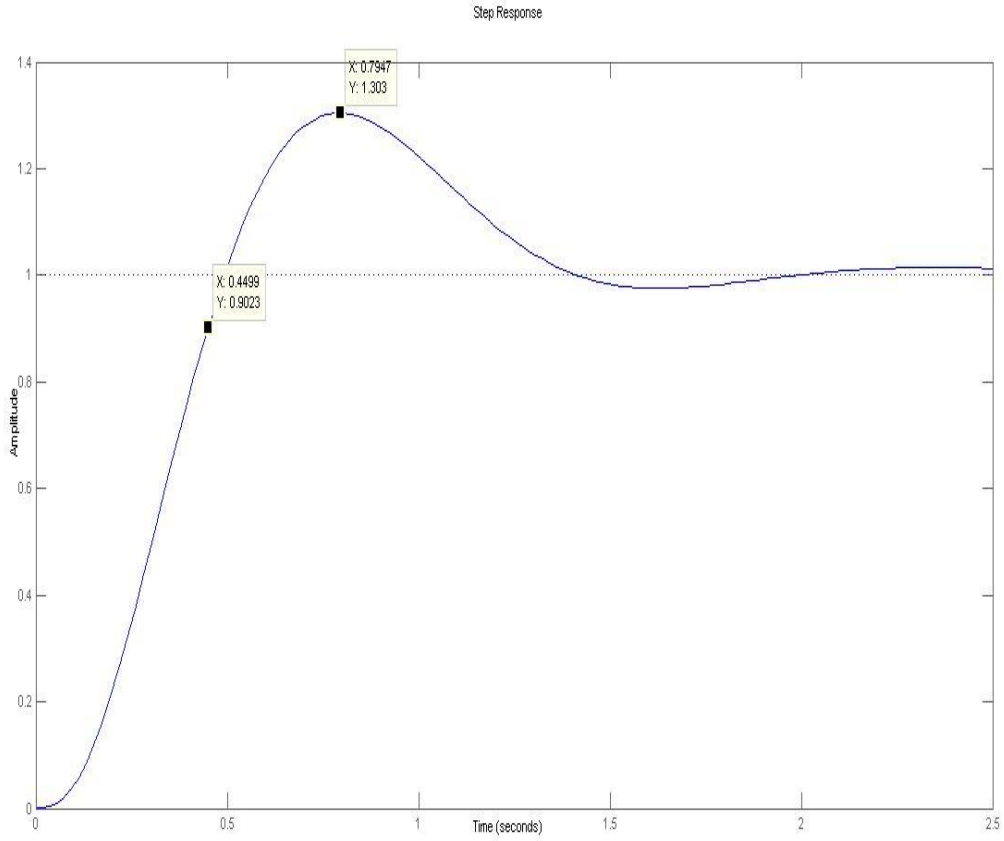


Figure 2: Unit Step Response of the required transfer function:



22) Code:

```
r1=[-0.29,-0.035,-18.001];
r2=[0,-10,-1.0707,-0.005,-41.099];
%bode([100 (100*0.29)],[1.0000   11.0701   10.7010         0]);
coef1=poly(r1);
coef2=poly(r2);
bode((527.58*2.2831*coef1),coef2);
```

Figure 1: Bode Plot of the transfer function with lead-lag compensation:

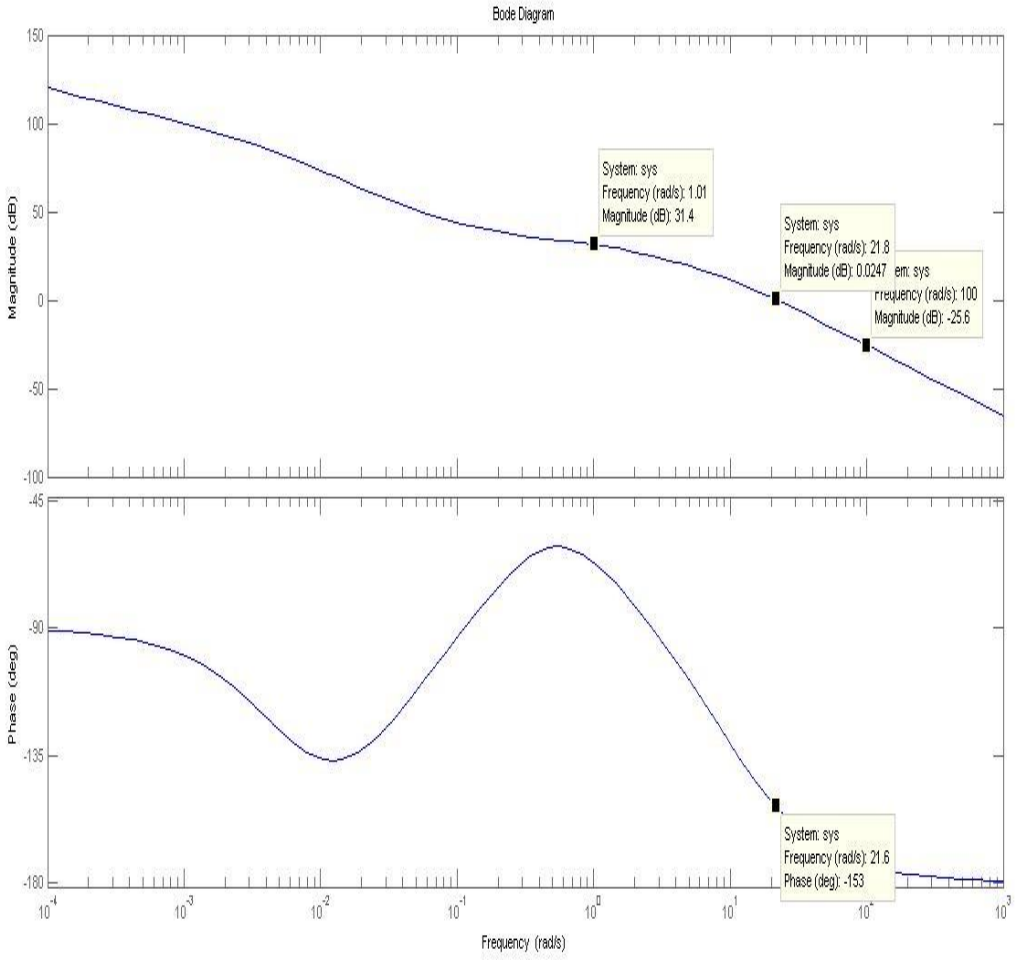


Figure 2: Bode Plot of the transfer function with an extra lead compensation: