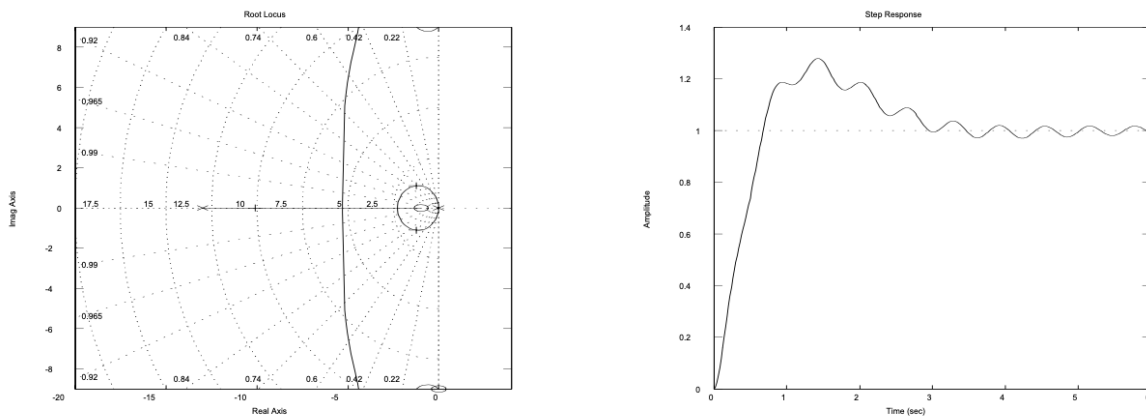


## Homework 6 Solutions

5.9)

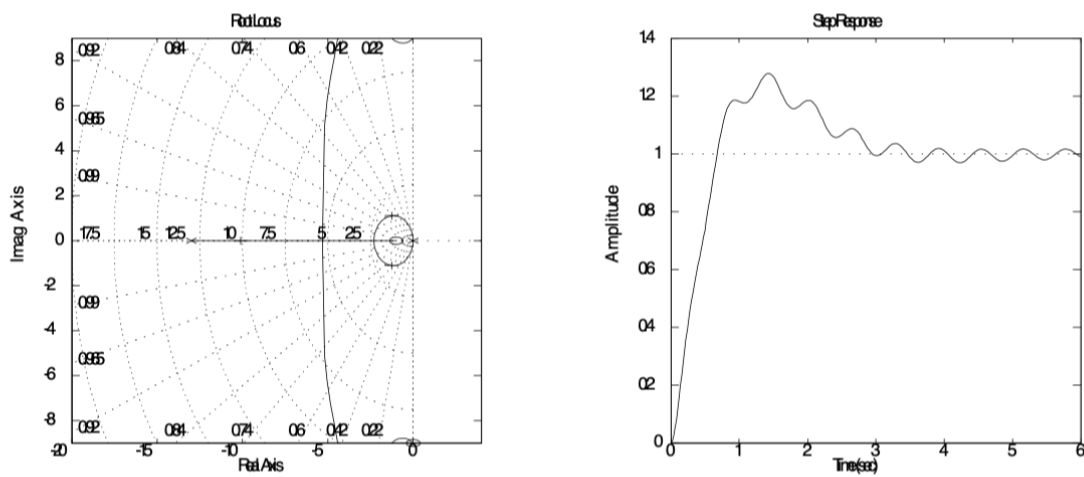
- (a) The locus is plotted below
- (b) There is a  $K$  which will make the 'dominant' poles have damping 0.5 but none that will make the poles from the resonance have that much damping.
- (c) Using `rlocfind`, the gain is about 35.
- (d) The step response shows the basic form of a well damped response with the vibration of the resonance element added.



Root locus and step response

5.13)

- (a) The locus is plotted below
- (b) There is a  $K$  which will make the 'dominant' poles have damping 0.5 but none that will make the poles from the resonance have that much damping.
- (c) Using rlocfind, the gain is about 35.
- (d) The step response shows the basic form of a well damped response with the vibration of the resonance element added.



Root locus and step response