EE 554 – Homework Chapter 4

4.6 Use the Routh-Hurwitz criterion to find the stable range of K for the closed-loop unity feedback systems with loop gain

(a) $G(z) = \dfrac{K(z-1)}{(z-0.1)(z-0.8)}$

(b) $G(z) = \dfrac{K(z+0.1)}{(z-0.7)(z-0.9)}$

4.16 Simulate the closed-loop systems shown in Problem 4.6 with a unit step input and (a) gain K equal to half the critical gain and (b) gain K equal to the equal to the critical gain. Discuss their stability using your simulation results.