Reading Assignments:

Shinners: Chapter 7 (Section 7.9).

Doyle, Francis, and Tannenbaum: Chapter 5.

Please enter your answers using the D2L Quiz for Homework #7.

1. Given

$$G[s] = \frac{1}{10(s^2 - 1)}$$

Design a controller to provide a stable, closed-loop system with a 2% settling time of 2 seconds.

2. Given

$$G[s] = \frac{10}{s(s+1)(s+2)}$$

Design a controller, $G_c[s]$, to produce a percent overshoot of 10% or less and a 2% settling time near 4 seconds (maybe try to achieve a 2% settling time of 4.1 or 4.2 seconds).

3. Given

$$G[s] = \frac{1}{s^2}$$

Design a phase-lead controller to achieve a damping ratio of 0.6, i.e., $\zeta = 0.6$, and a 2% settling time of less than 2.5 seconds.