ECE 461/661 - Homework Set #10

z-Transform, Converting G(s) to G(z). Due November 14th.

Assume a sampling rate of 10ms.

- Determine a digital filter, G(z), which has approximately the same step response as G(s).
- Verify your design by plotting the step response of G(s) and G(z)

1) $G(s) = \left(\frac{10}{(s+1)(s+2)} \right)$

2) $G(s) = \left(\frac{10}{s(s+5)} \right)$

3) $G(s) = 4\left(\frac{s+2}{s+4} \right)$

4) $G(s) = \left(\frac{104}{(s+2+j10)(s+2-j10)} \right)$

5) Write a program to implement the following system. Assume a sampling rate of 10ms.

$$Y = \left(\frac{0.01z}{(z-1)(z-0.9)(z-0.5)} \right) X$$