

## PROBLEM:

For each of the following systems (specified by either an  $H(z)$  or a difference equation), determine all the poles and zeros and make a pole-zero plot.

(a)  $\mathcal{S}_a$  :  $y[n] = 5x[n] - 10x[n - 2] + 5x[n - 4]$

(b)  $\mathcal{S}_b$  :  $H(z) = \frac{3 + 3z^{-1} + 3^{-2}}{1 + 0.6z^{-1} + 0.81z^{-2}}$

(c)  $\mathcal{S}_c$  :  $y[n] = -0.81y[n - 2] + 4x[n - 1] - 5x[n - 2]$