Full Name: _____

EEE 5502 (Fall 2022) – Practice **Poles and Zeros / Causality / Stability, 2022**

Question #1: For each of the following z-transforms,

- ***Do not*** compute the inverse Z-transform
- Plot the pole-zero plot and the region of convergence
- Answer if the system is stable or unstable

Use the discrete-time transform tables on the course website.

(a) $H(z) = \dfrac{1}{1-(1/10)z^{-1}}$ (assume the system is *causal*)

(b) $H(z) = \dfrac{z^2-2z+1}{(z-4)^2+16}$ (assume the system is *anti-causal*)

(c) $H(z) = \dfrac{1}{1-(1/4)z^{-1}} + \dfrac{4}{1+2z^{-1}}$ (assume the system is *stable*)