EE434, Fall 2004 Lesson 18 HW

4.17 The transfer function of a certain system is defined as

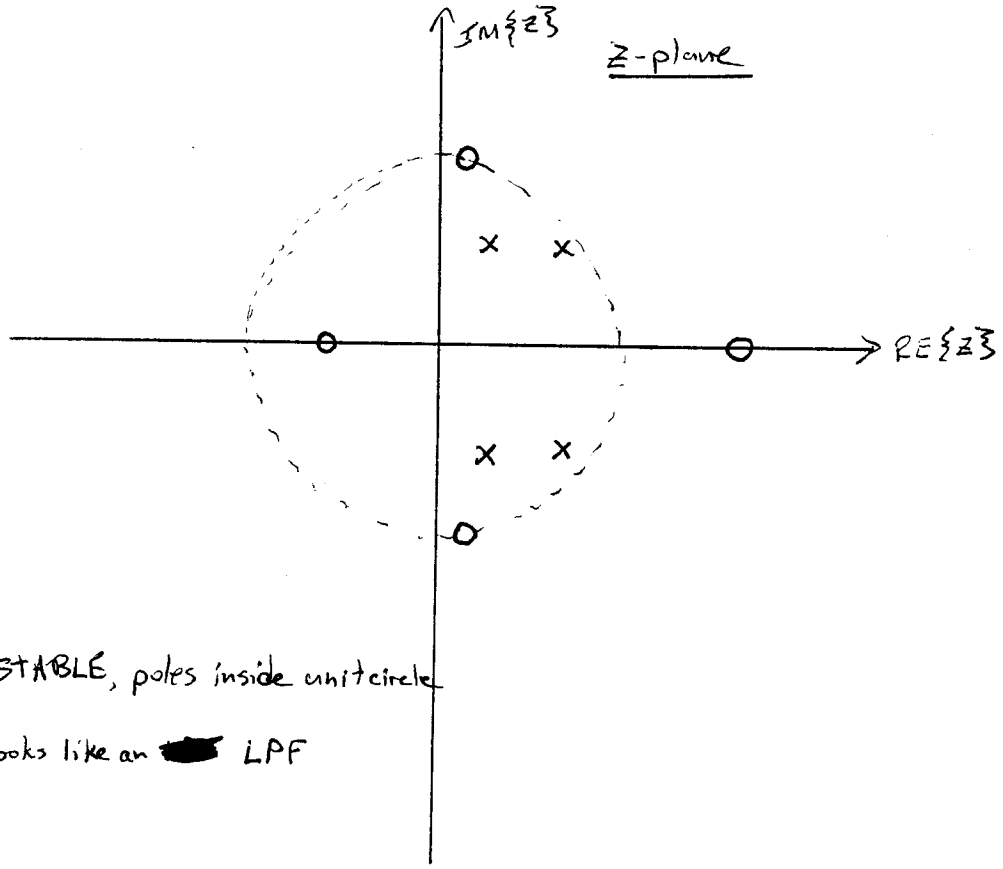
$$H(z) = \frac{(1 - 1.094\,621z^{-1} - z^{-2})(1 - 0.350\,754z^{-1} + z^{-2})}{(1 - 1.340\,228z^{-1} + 0.796\,831z^{-2})(1 - 0.5z^{-1} - 0.5z^{-2})}$$

(1) Find the poles and zeros, and sketch the pole–zero diagram.

(2) State, with justification, whether the system is stable or not.

$$H(z) = \frac{(z - 1.68729)(z + 0.592667)(z - 0.175377 - 0.984501j)(z - 0.175377 + 0.984501j)}{(z - 0.670114 \pm 0.589727j)(z - 0.250 \pm 0.661438j)}$$

(1)




(2) STABLE, poles inside unit circle

Looks like an [redacted] LPF