

PROBLEM:

Answer the following questions about the system whose z -transform system function is

$$H(z) = \frac{1 + 0.8z^{-1}}{1 - 0.9z^{-1}}$$

- Determine the poles and zeros of $H(z)$.
- Determine the difference equation relating the input and output of this filter
- Derive a simple expression (purely real) for the mag-squared of the frequency response $|H(e^{j\hat{\omega}})|^2$.
- Is this filter a Lowpass or Highpass filter? EXPLAIN your answer.