CSE 3313 - Homework #4 – System Frequency Response HW

# System Frequency Response

Find the system frequency response or DTFT, if it exists

2. 1. Does not exist.


6. 1. Does not exist.

For the difference equation below

1. What range of values for 𝛼 will result in a system frequence response that exists?
2. Fing h[n] from the difference equation.
3. Find for the system.
4. Find the magnitude-squared system frequency response for the system in terms of trigonometric functions and plot the response from w=0 to w=2π.

To find magnitude squared of a complex frequency, you multiply by the complex conjugate.

As a final note, the equation in the frequency response notes is incorrect. The sign is wrong. It should be

as shown in the difference equation notes.

Plots are on the next page.

=0.5 =-0.5

A graph with a red line

Description automatically generated A graph with a red line

Description automatically generated

=1

A graph of a function

Description automatically generated