Chapter 7

MATLAB EXERCISE

Graphing a Filter on the Complex Number Plane

Chapter 7 discusses zero-pole diagrams and how filters can be graphed on the complex number plane. An IIR filter is given, defined by this equation.

\[ y(n) = x(n) - x(n - 2) - 0.49y(n - 2) \]

Equation 1 Equation for an IIR filter

The zero-pole diagram for the filter is this:

![Figure 1 Zero-pole diagram for an IIR filter](image)

The frequency response of this bandpass filter is this:
The magnitude of the frequency response, plotted on the complex number plane, looks like this.

Your challenge is to write a MATLAB program that produces the graph in Figure 3.b