HW #2 Polynomial Generation and Root Solving

I.   **Polynomial Generation**

    A.   Investigate the software necessary to generate the complex coefficients of a polynomial given its complex roots.

$$f(z) = \prod_i (z - z_i), \; z_i = r_i \, e^{j\phi_i}$$

    B.   Verify that the polynomial generation software is operational.

II.   **Polynomial Roots**

    A.   Investigate the software necessary to solve for the complex roots of a polynomial given its complex coefficients.

    B.   Verify that the polynomial root solving software is operational.

III.   **Plotting Root Locations**

    A.   Add to your existing plotting templates the capability to plot the locations of the roots of a polynomial in the complex z-plane. Include axes and the unit circle. You should be able to specify what symbol is used for each root set when multiple sets of roots are plotted (e.g. "o" for zeros and "x" for poles).

    B.   Demonstrate that the plotting capability is operational.