1. $x1(z) = 2 + 3Z^{-1} + 4Z^{-2}$ and $x2(z) = 3 + 4Z^{-1} + 5Z^{-2}$. Determine X3(z) = X1(z)X2(z).

2. $x1(z) = Z + 2 + 3Z^{-1}$ and $x2(z) = 2Z^{2} + 3 + 4Z^{-1}$. Determine X3(z) = X1(z)X2(z).

3. X(z) = $\frac{Z}{3Z^{2} - 4z + 1}$ convert this rational function in ascending powers of Z^{-1} .

   Sketch its pole-zero plot.

4. Causal system y(n)=0.9y(n − 1) + x(n)
   a. Sketch its pole-zero plot.
   b. Plot $|H(e^{j\omega})|$ and $\angle H(e^{j\omega})$.