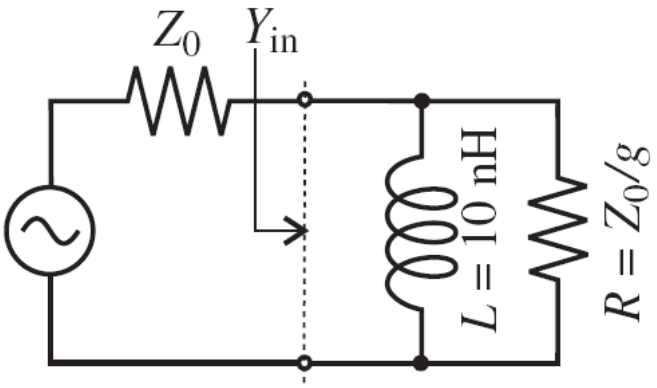
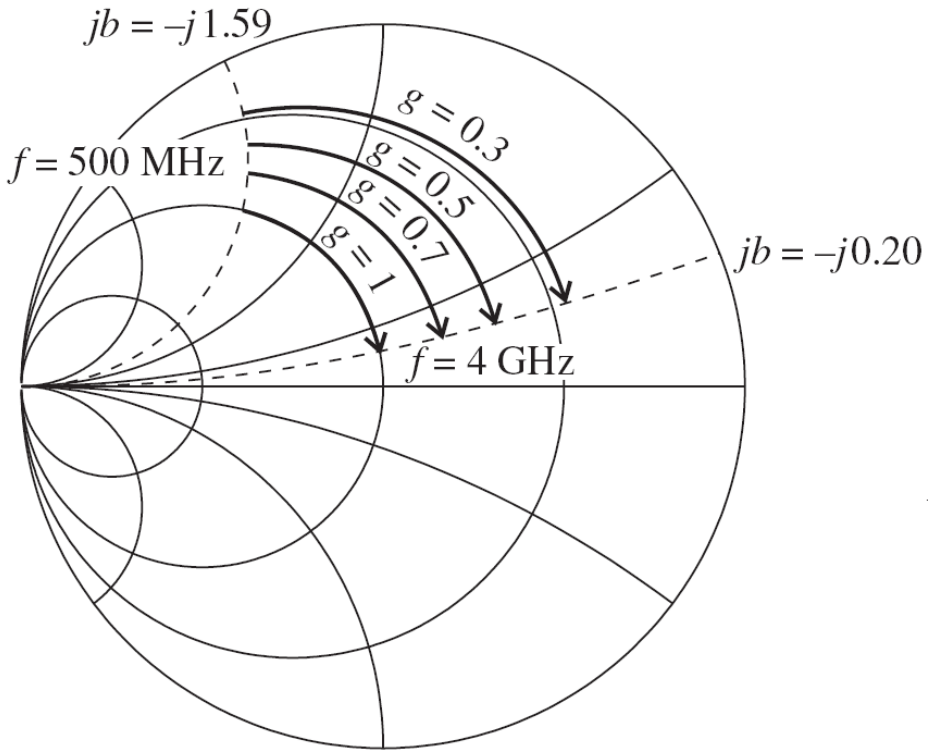
HA # 2

Part-1: For the parallel connection of R and L, demonstrate using MATLAB and ADS:

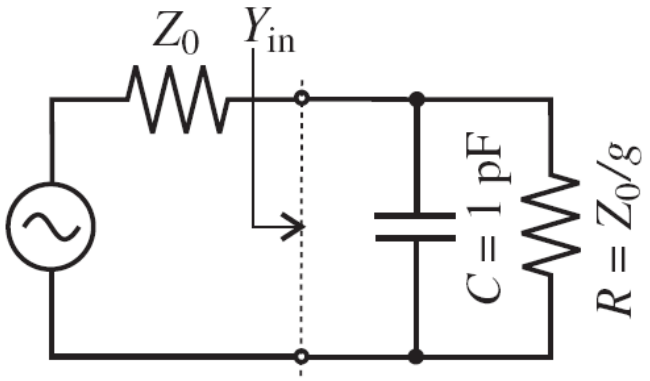


$Z_0 = 50\Omega$

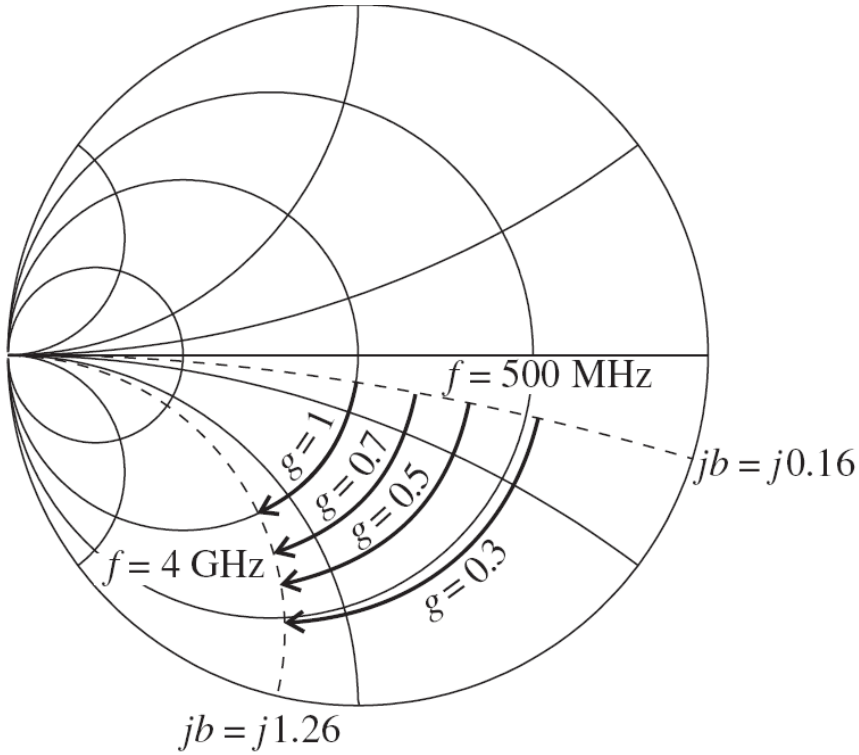


HA # 2

Part-2: For the parallel connection of R and C, demonstrate using MATLAB and ADS:

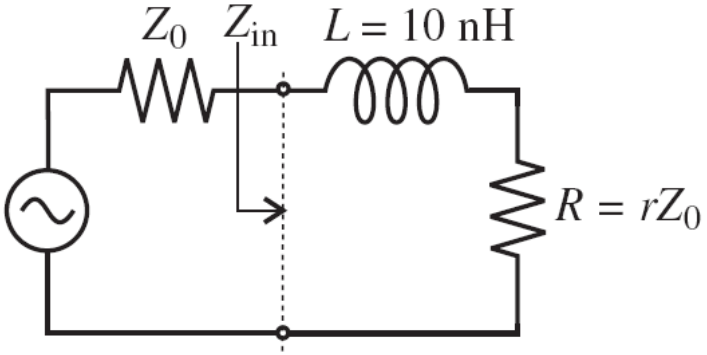


$Z_0 = 50\Omega$

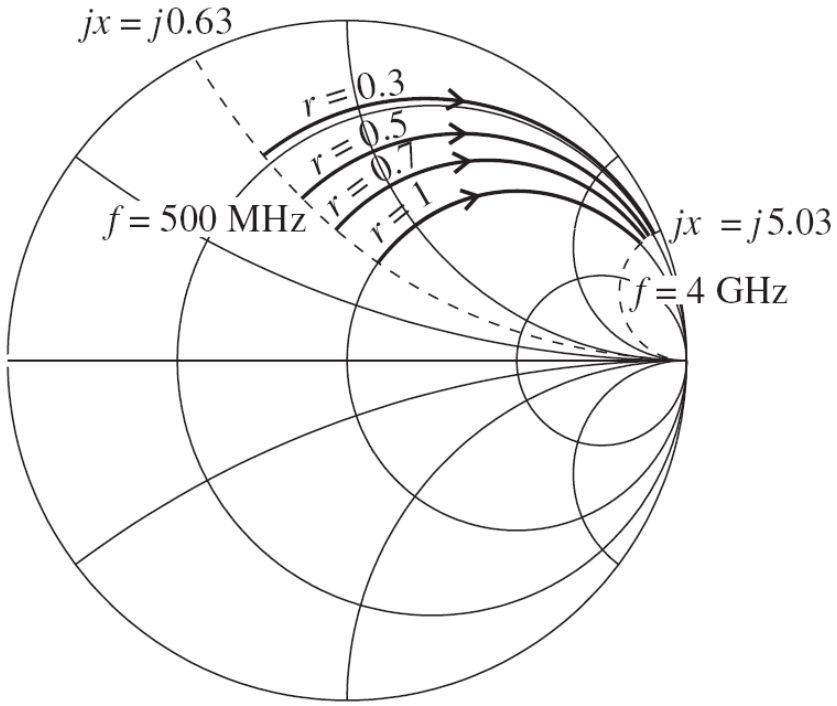


HA # 2

Part-3: For the series connection of R and L, demonstrate using MATLAB and ADS:

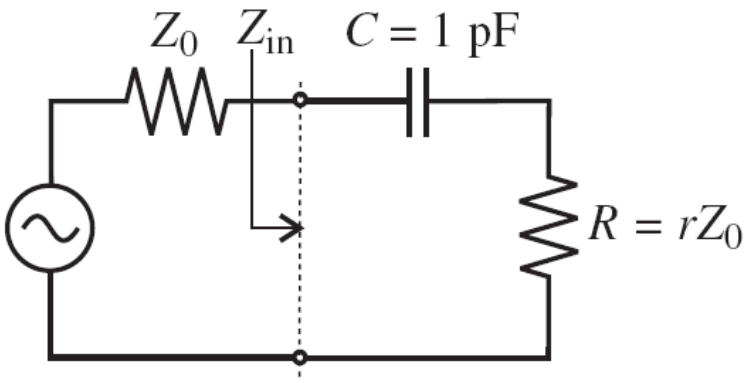


$Z_0 = 50\Omega$

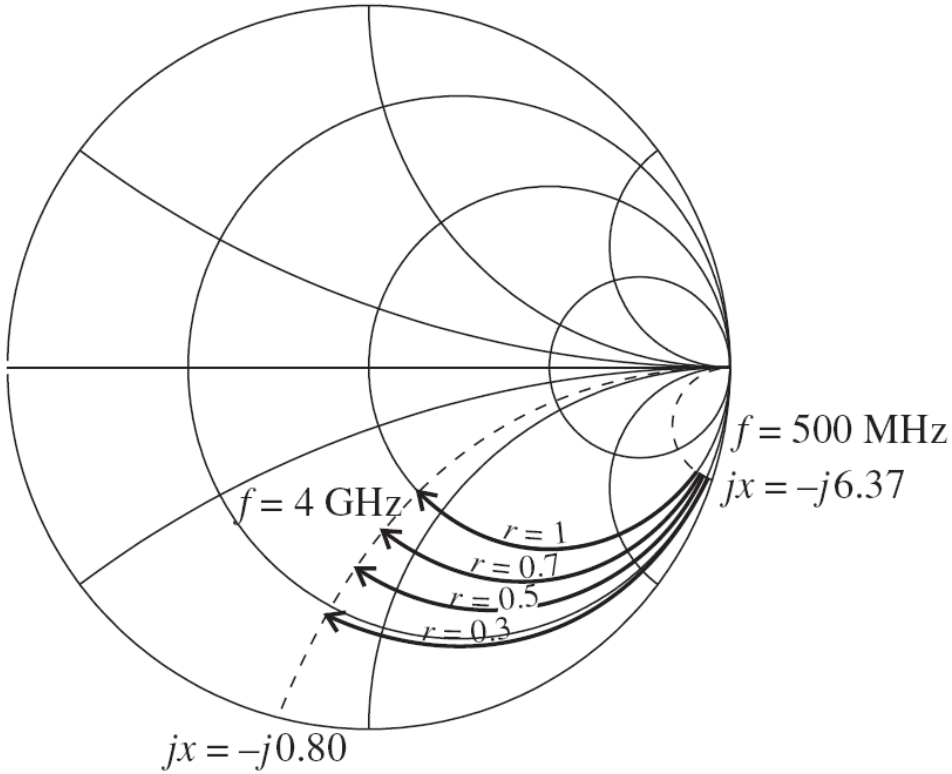


HA # 2

Part-4: For the series connection of R and C, demonstrate using MATLAB and ADS:

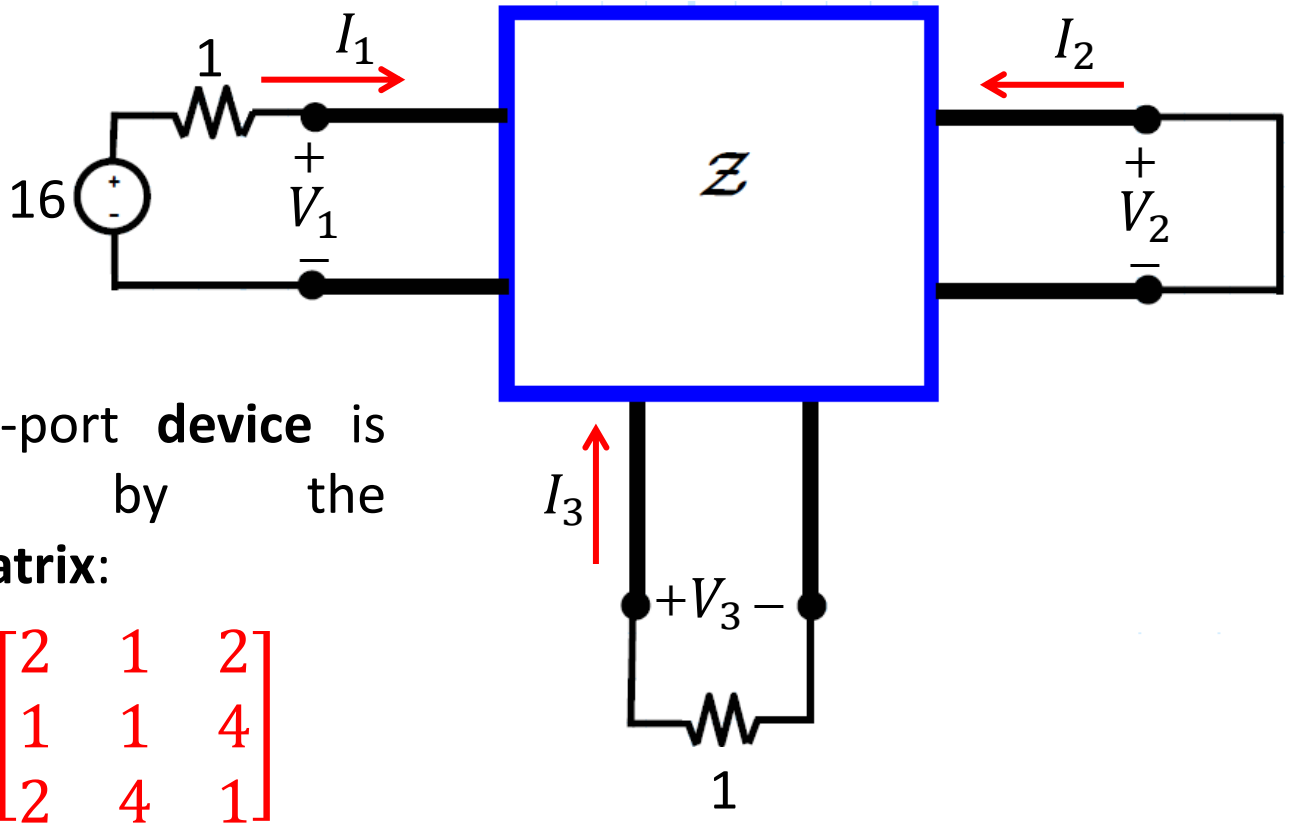


$Z_0 = 50\Omega$



HA # 2

Part-5: Consider the following circuit:



- Where the 3-port **device** is characterized by the **impedance matrix**:

$$\mathbf{Z}=\begin{bmatrix}2 & 1 & 2\\ 1 & 1 & 4\\ 2 & 4 & 1\end{bmatrix}$$

determine all port **voltages** V_1, V_2, V_3 and all **currents** I_1, I_2, I_3.

HA # 2

Part-6: determine the **scattering matrix** of this two-port device: