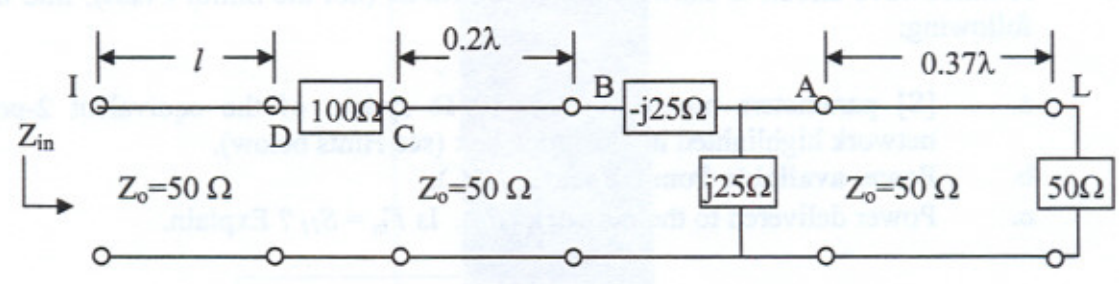


2. Use the **Combined Smith Chart** provided and determine the length, l , of transmission line required on the input to make the input impedance of the following circuit **purely real** and as **large as possible**. Include the Smith Chart with your solution, clearly marking the construction using the "letters" given in the circuit and "arrows" to indicate the direction of your transformations. (Note: shunt elements shown are impedances)

a. What is Z_{in} ?



3. Design an **open circuit single shunt** stub tuner to transform a 50Ω load in a 50Ω system to an impedance of $100 + j50 \Omega$. The stub should be as **short as possible**. Use 50Ω transmission lines for the tuner. Include the **Regular Smith Chart** provided with your solution, **clearly** marking all constructions.