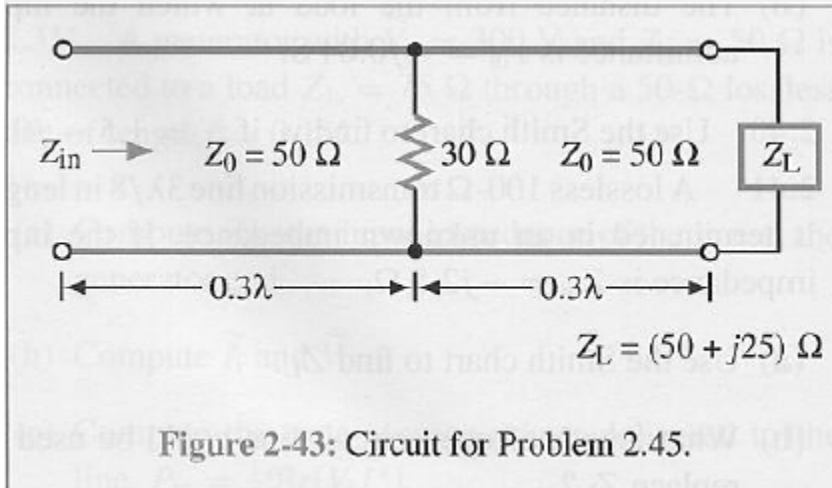


Homework #5

1. Problem 2.63 in 7/E and 6/E (i.e. 2.45 in 5/E, images below, and the answer sheet)

2.45* A $50\text{-}\Omega$ lossless line 0.6λ long is terminated in a load with $Z_L = (50 + j25)\ \Omega$. At 0.3λ from the load, a resistor with resistance $R = 30\ \Omega$ is connected as shown in Fig. 2-43. Use the Smith chart to find Z_{in} .

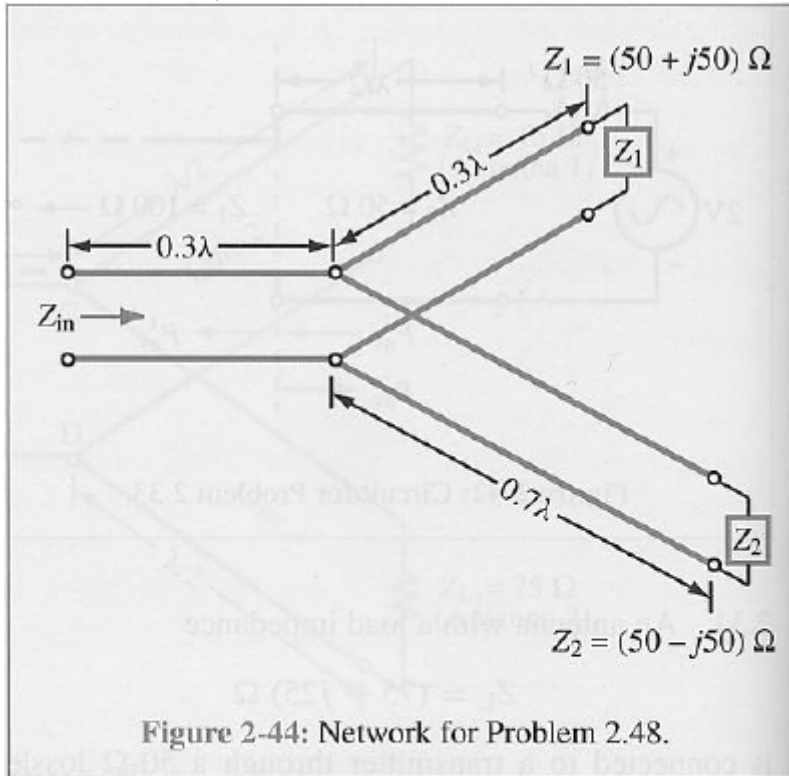


2. Problems 2.68 **AND** 2.69 in 7/E and 6/E (i.e. 2.46 and 2.47 in 5/E, image below, and the answer sheet)

2.46 A $50\text{-}\Omega$ lossless line is to be matched to an antenna with $Z_L = (75 - j20)\ \Omega$ using a shorted stub. Use the Smith chart to determine the stub length and distance between the antenna and stub.

2.47* Repeat Problem 2.46 for a load with $Z_L = (100 + j50)\ \Omega$.

3. Problem 2.72 **AND** 2.73 in 7/E and 6/E (i.e. 2.48 and 2.49 in 5/E, image below, and the answer sheet)



2.48 Use the Smith chart to find Z_{in} of the feed line shown in Fig. 2-44. All lines are lossless with $Z_0 = 50 \Omega$.

2.49* Repeat Problem 2.48 for the case where all three transmission lines are $\lambda/4$ in length.