

ELL212 - Tutorial 2, Sem II 2015-16

- 1) For the transmission line represented in Fig.1, calculate the potential developed across the 80Ω resistor for (a) $f = 60$ Hz, (b) $f = 1$ MHz, (c) Repeat part (a) with length 10^7 m instead of 80m.

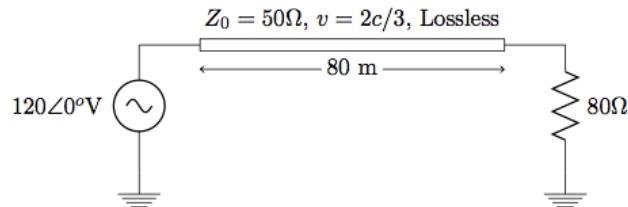


Fig. 1. Problem Q1

- 2) Calculate the average power dissipated by each resistor in the circuit shown in Fig.2.

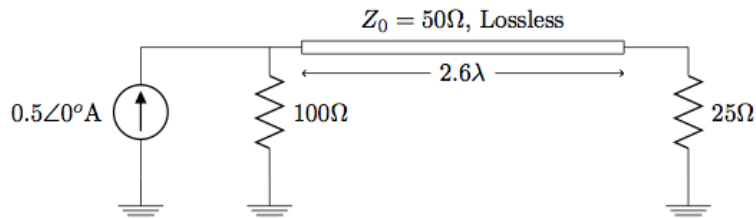


Fig. 2. Problem Q2

- 3) The lossless line shown in Fig.3 is operating with $\lambda = 100$ cm and $Z_0 = 300\Omega$. If $d_1 = 10$ cm, $d = 25$ cm, and the line is matched to the left of the stub, what is Z_L ?
- 4) The two-wire lines shown in Fig.4 are all lossless and have $Z_0 = 200\Omega$. Find the possible values of d and d_1 to provide a matched load if $\lambda = 100$ cm. (Note that the unshaded and shaded conductor are both parts of the same transmission line, for example they can be the inner and outer conductor of a coaxial cable.)

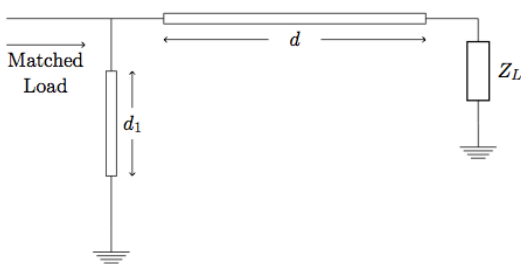


Fig. 3. Problem Q3

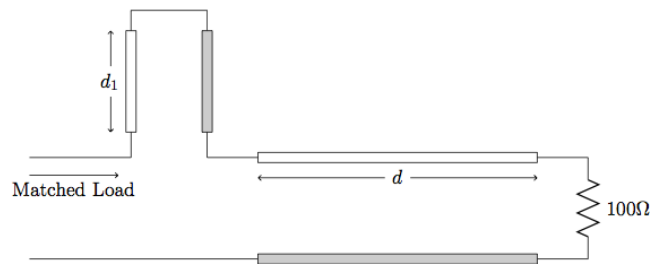


Fig. 4. Problem Q4