

### Special Problem 5.2-2

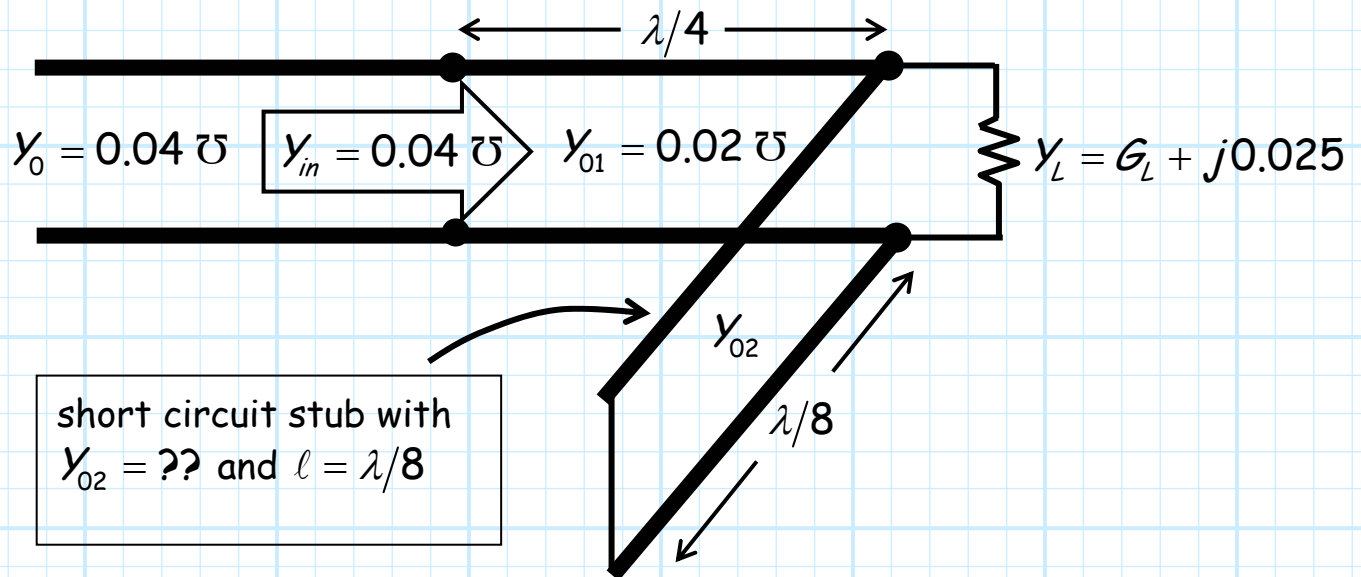
A **lossless matching network** has been constructed to match a **complex load** to a transmission line with characteristic admittance  $Y_0 = 0.04 \text{ } \Omega^{-1}$ .

Note that this matching network is **not** specifically one of the standard designs that we studied.

The **complex admittance**  $Y_L$  of the load is:

$$Y_L = G_L + j0.025$$

The matching network includes a **shorted shunt stub** with characteristic admittance  $Y_{02}$ .



Determine the **conductance**  $G_L$  of the load and the **characteristic admittance**  $Y_{02}$  of the shunt stub.

**Hint:** The **math** is **easier** if you leave everything (e.g.,  $Y_L$ ) expressed in terms of admittance.