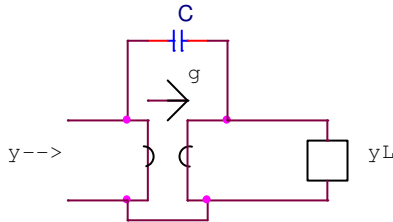


610 Fall 2012 – Homework 3

- For the gyrator equivalents giving an inductor from a capacitor and giving an ideal transformer from a cascade, consider that the gyrators are nonideal so that $g_{21}=g$ but that g_{12} is perturbed to $g_{12}=-(g+\delta)$. Determine the new equivalents. Repeat for the nullator and the norator. Discuss the effect of using nonideal gyrators in practical circuits without physical inductors.
- Find the input admittance, y , for the following circuit, loaded by y_L , when the gyrator is replaced by the perturbed one of problem 1 above. Then find y_L in terms of y .



- The following 2-port circuit has the input port at nodes 1-5 and the output at nodes 2-5.
 - Find the 5x5 indefinite admittance and from it
 - Ground node 5, eliminate nodes 3 & 4 and find the 2-port admittance. $Y(s)$

