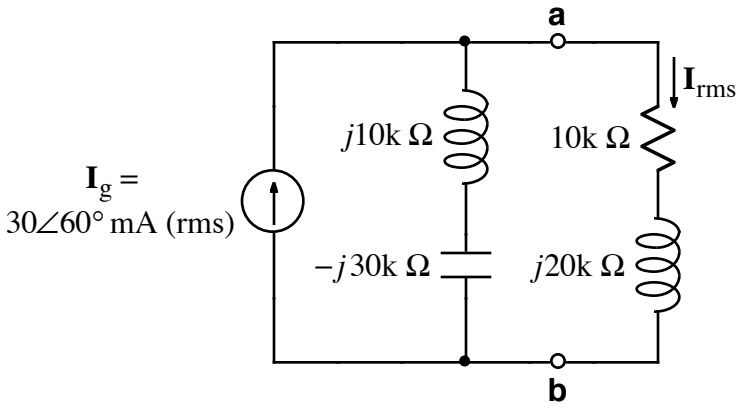
HOMEWORK #8

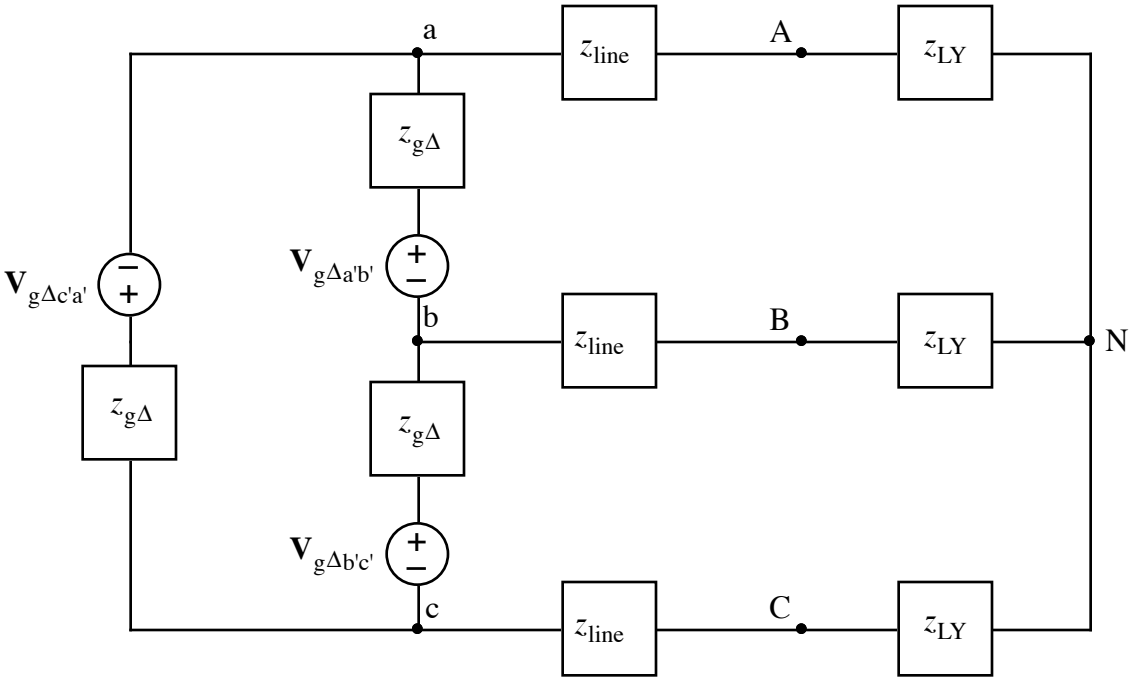
1.



a) Calculate the value of rms voltage, $\mathbf{I}_{rms}$, flowing in the circuit to the right of terminals **a** and **b**.

b) Calculate the complex power, S, for the circuit to the right of terminals **a** and **b**. Include appropriate units for S.

2.



$\mathbf{V}_{g\Delta a'b'} = 123\angle 0°$ V $\quad z_{g\Delta} = 0.900 + j18.000\ \Omega$

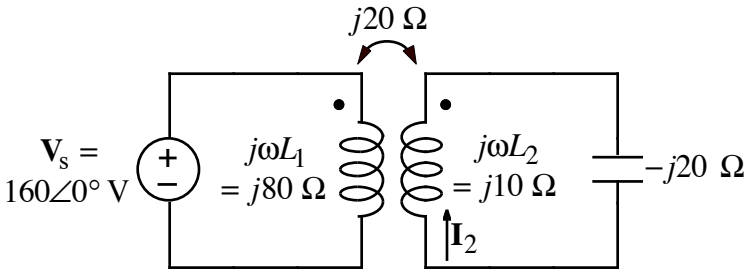
$\mathbf{V}_{g\Delta b'c'} = 123\angle -120°$ V $\quad z_{line} = 0.268 + j2.076\ \Omega$

$\mathbf{V}_{g\Delta c'a'} = 123\angle +120°$ V $\quad z_{LY} = 0.432 - j1.076\ \Omega$

Draw a single-phase equivalent circuit.

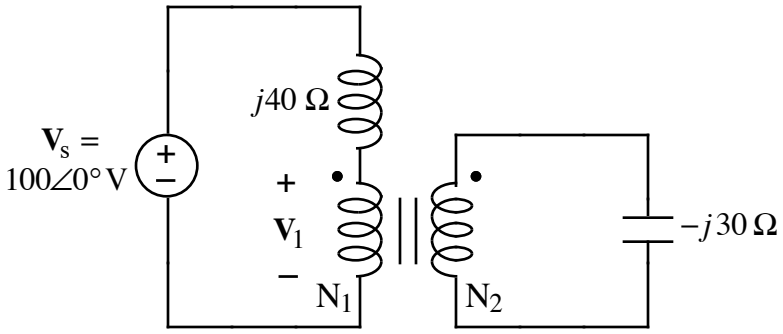
3. Calculate the voltage drop $\mathbf{V}_{CN}$ across z_{LY} between C and N.

4.



Calculate the numerical value of phasor current, $\mathbf{I}_2$, flowing upward in the right coil of the transformer in the above circuit. Note: the transformer is linear.

5.



Given $\mathbf{V}_1 = 150\angle 0°$ V find the turns ratio, N_1/N_2, for the transformer in the above circuit. Note: the transformer is ideal.