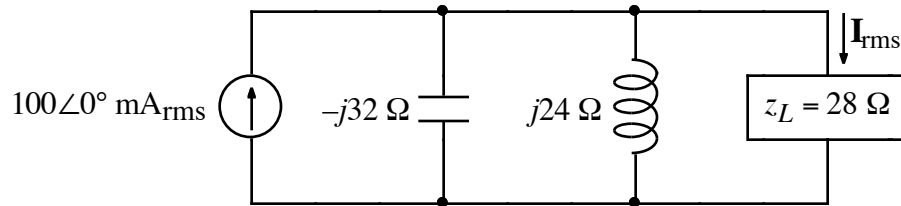
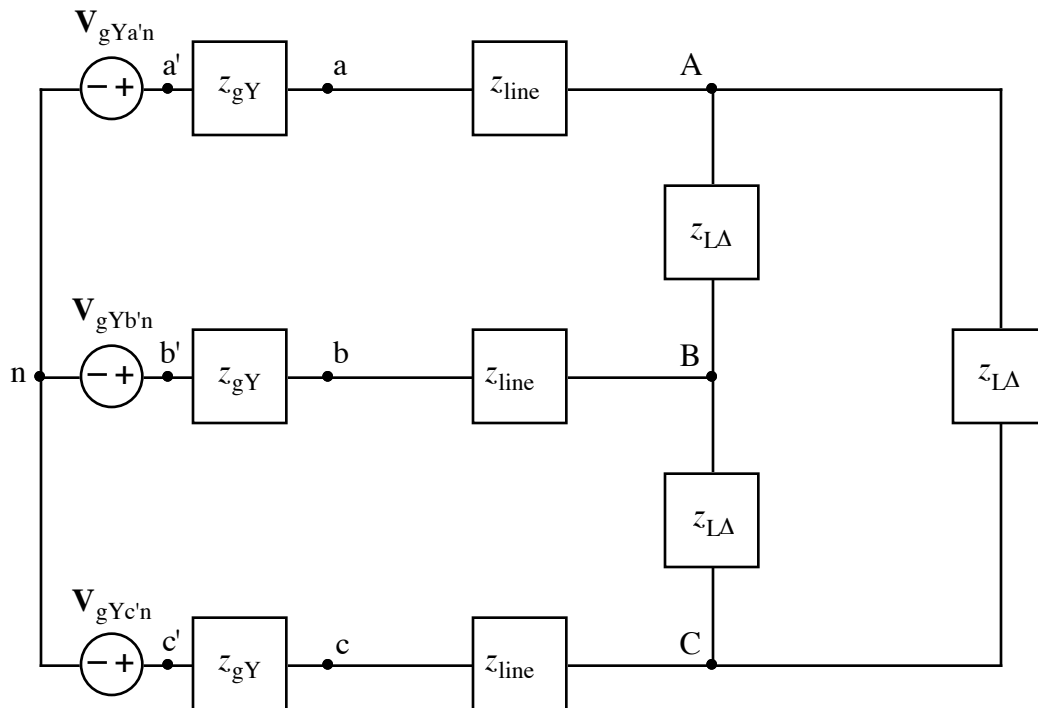


1.



- a) Calculate the value of rms current,  $I_{\text{rms}}$ , flowing through  $z_L$ .
- b) Calculate the complex power,  $S$ , for  $z_L$ . Include appropriate units.

2.



$$V_{gYa'n} = 672\angle 0^\circ \text{ V}$$

$$z_{gY} = 1 + j0.5 \Omega$$

$$V_{gYb'n} = 672\angle +120^\circ \text{ V}$$

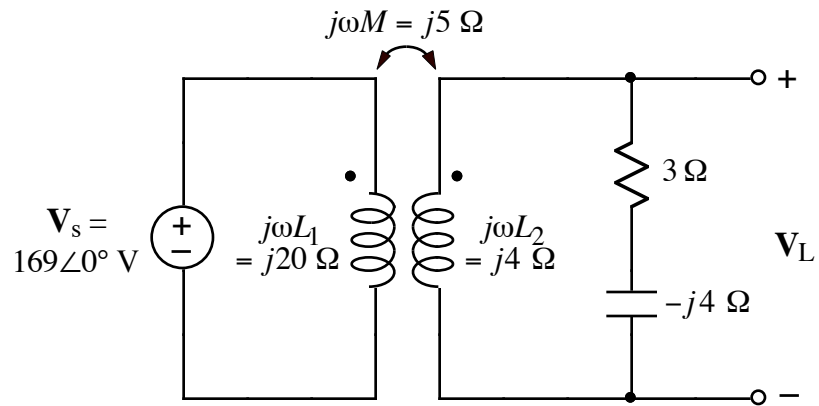
$$z_{\text{line}} = 1.2 + j0.3 \Omega$$

$$V_{gYc'n} = 672\angle -120^\circ \text{ V}$$

$$z_{L\Delta} = 0.6 - j12 \Omega$$

- a) Draw a single-phase equivalent circuit.
- b) Calculate  $I_{CA}$ . Note that this is on the right (or load) side of the circuit.

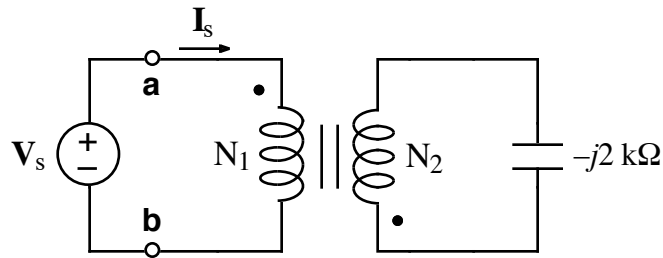
3.



Calculate the numerical value of phasor voltage  $V_L$  for the above circuit.

Note: the transformer is linear.

4.



Given  $N_1/N_2 = 7$ , calculate the equivalent impedance,  $z_{eq} = V_s/I_s$ , to the right of the **a** and **b** terminals in the above transformer circuit. Note: the transformer is ideal.