

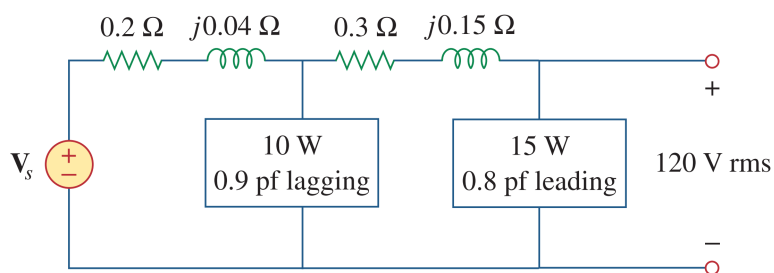
# VE215 2023Su Assignment 6

Due Date: 23:59, July 18th, 2023

In order to get full marks, you shall write all the intermediate steps of calculation or proof unless otherwise indicated.

## Exercise 6.1 (30%)

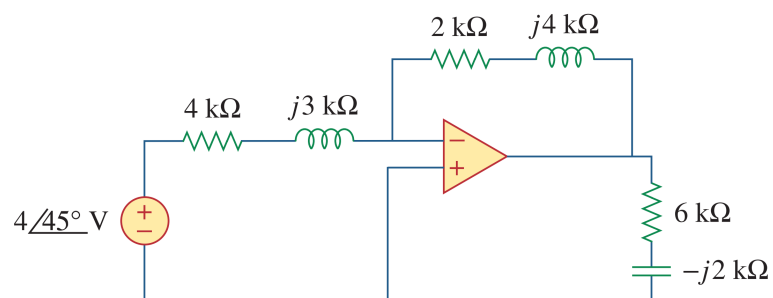
For the circuit below, find  $V_s$ .



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### Exercise 6.2 (15%)

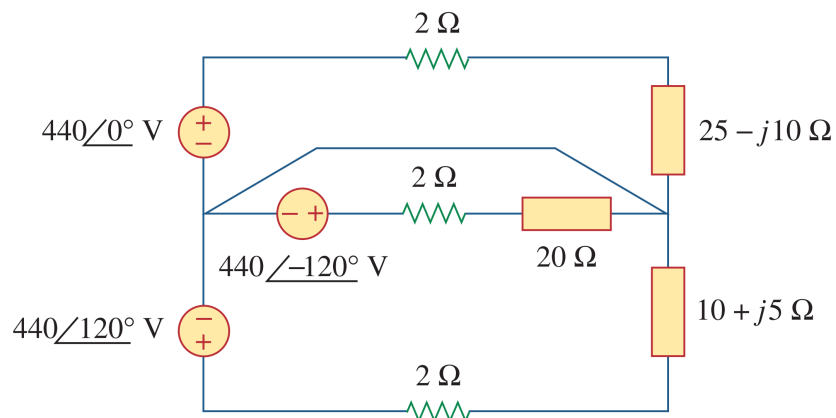
Obtain the average power absorbed by the  $6k\Omega$  resistor in the circuit.



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### Exercise 6.3 (20%)

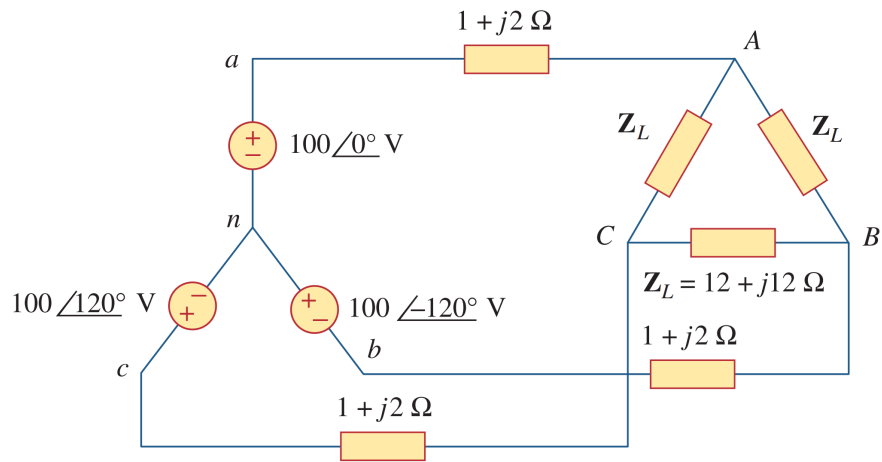
Determine the current in the neutral line.



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### Exercise 6.4 (15%)

Obtain the line currents in the three-phase circuit.



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### Exercise 6.5 (20%)

Find the line currents  $I_a$ ,  $I_b$ , and  $I_c$  in the three-phase network. Take  $\mathbf{Z}_\Delta = 12 - j15\Omega$ ,  $\mathbf{Z}_Y = 4 + j6\Omega$ , and  $\mathbf{Z}_l = 2\Omega$ .

