Discussion 6A

1. AC Power Calculations (Hambley Example 5.7)

Suppose you are given the circuit in Figure 1, where the phasor for current $i(t)$ is calculated to be $\frac{\sqrt{2}}{10}e^{-\frac{3\pi}{4}j}$.

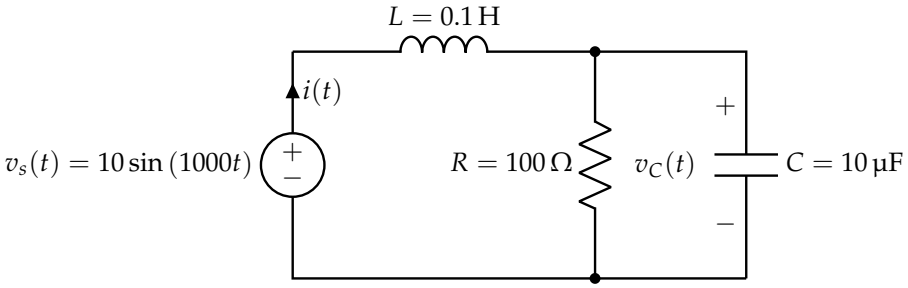

Figure 1: RLC Circuit

(a) **Compute the power and reactive power taken from the source in the circuit provided in Figure 1.**

(b) **Compute the power and reactive power delivered to each element in the circuit.** Assume you are given the computed currents in Figure 2.

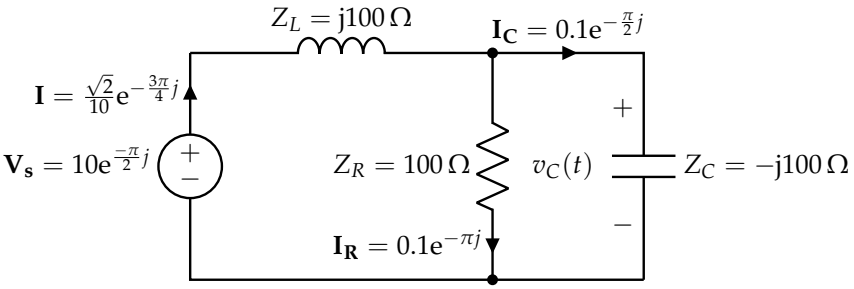

Figure 2: RLC Circuit

2. Hambley P5.83

(a) Find the Thevenin and Norton equivalent circuits for the circuit shown in Figure 3.

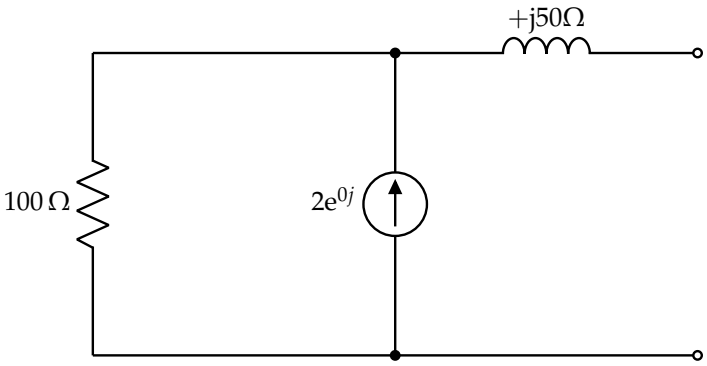

Figure 3: P5.83

(b) Find the maximum power that this cicuit can deliver to a load if the load can have any complex impedance. *Hint: Think about which impedance value for the load would optimize the power expression.*

(c) Repeat the previous part, but this time the load is purely resistive.

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