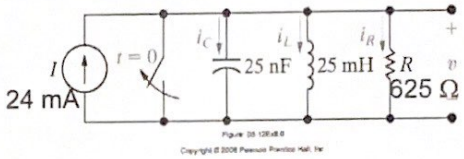
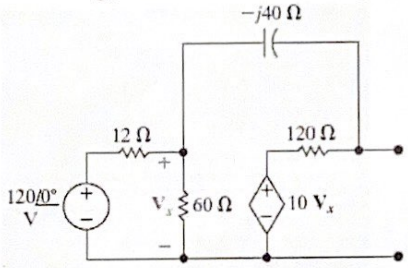
The Third Exam. of Electric Circuits

December 5, 2022

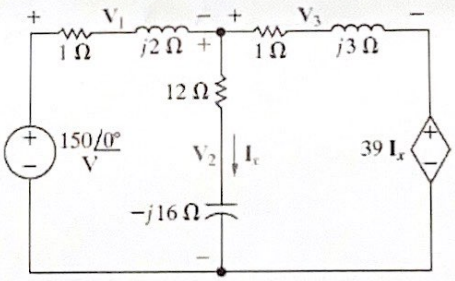
1. A circuit is shown as follows. Find $i_L(t)$ when $i_L(0^+)=i_L(0^-)=0$ and $v_c(0^+)=v_c(0^-)=0$.



2. For a circuit shown in the following, find its Thévenin equivalent circuit looked from the right-hand side port.



3. A circuit is shown as follows. Find V_1 and V_2.



4. For the circuit shown in the following, Load 1 absorbs an average power of 6 kW at a leading power factor of 0.6 and Load 2 absorbs 20 kVA at a lagging power factor of 0.6. Given that $f = 60$ Hz, compute the value of the capacitor that would correct the power factor to 1 if placed in parallel with the two loads.

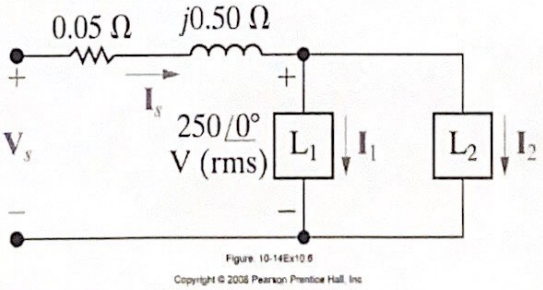


Figure 10-14Ex10.6

5. For a circuit shown as follows, find the maximum power transfer if $5000\ \Omega \geq R_L \geq 0\ \Omega$ and $0 \geq X_C \geq -3000\ \Omega$.

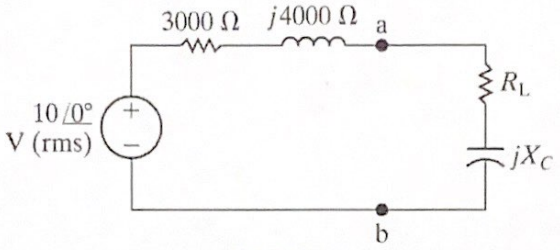


Figure: 10-23Ex10.9