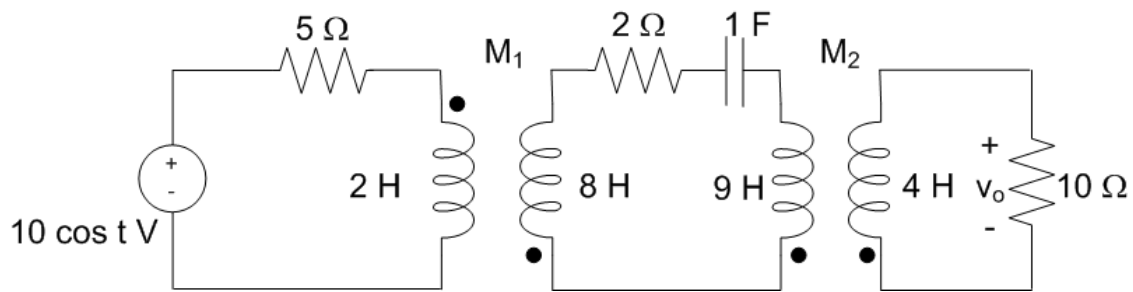EE 313 – Spring 2007 – Problem Set 6

1. Find $\mathbf{V_o}$.
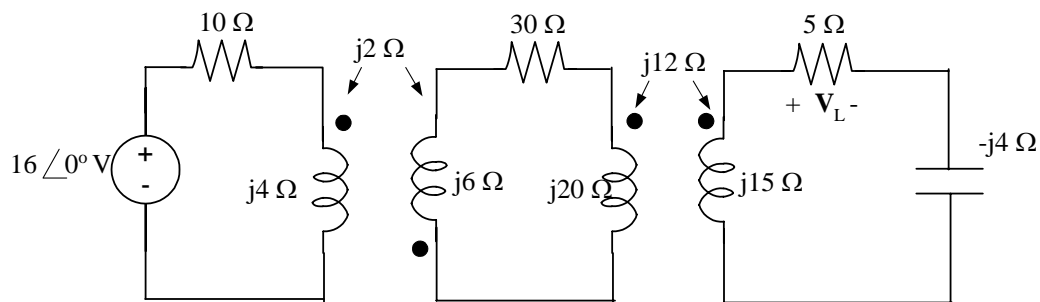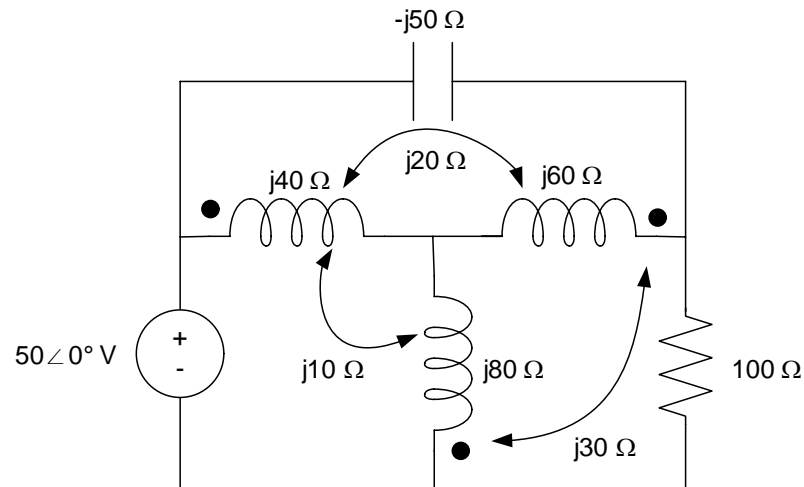

2.
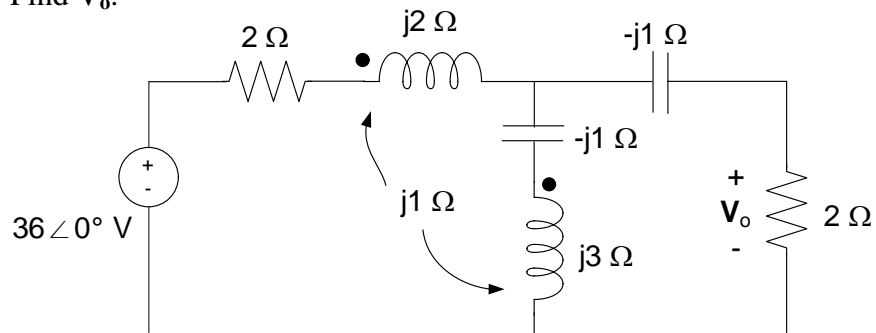
   a. Find M_1 and M_2 for k=0.5 for both pairs of coupled coils.
   b. Transform the circuit to the frequency domain and calculate $\mathbf{V_o}$.
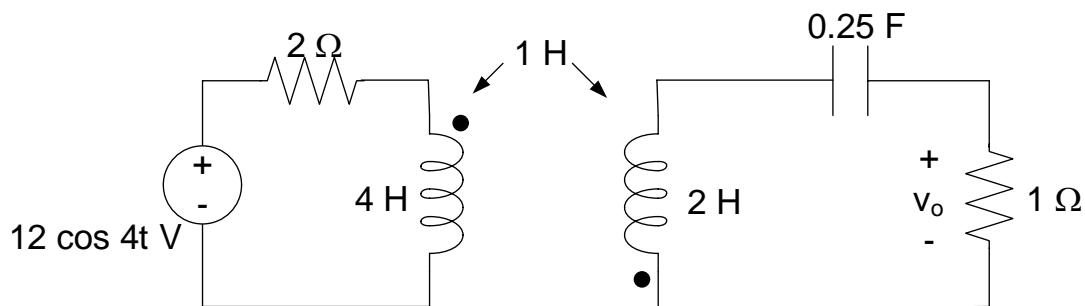   c. Calculate $v_o(t)$.
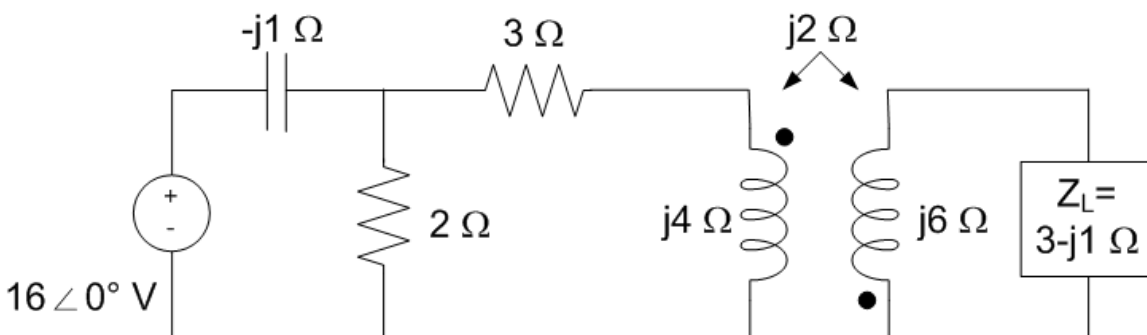
3. Solve for the voltage $\mathbf{V_L}$

4. For the following problem, write down and simplify the mesh equations required to solve the circuit.

5. For the given transformer, find the input impedance $(Z_1=V_1/I_1)$ reflected into the primary

6. Consider the following general transformer circuit consisting of a source in the primary and a load in the secondary.

a. Find the transformer terminal ratios V_2/V_1 and I_2/I_1. You need to label these voltages and currents. You may need to re-derive the relationships.
b. Does source transfer maximum power to Z_L? Support your answer.