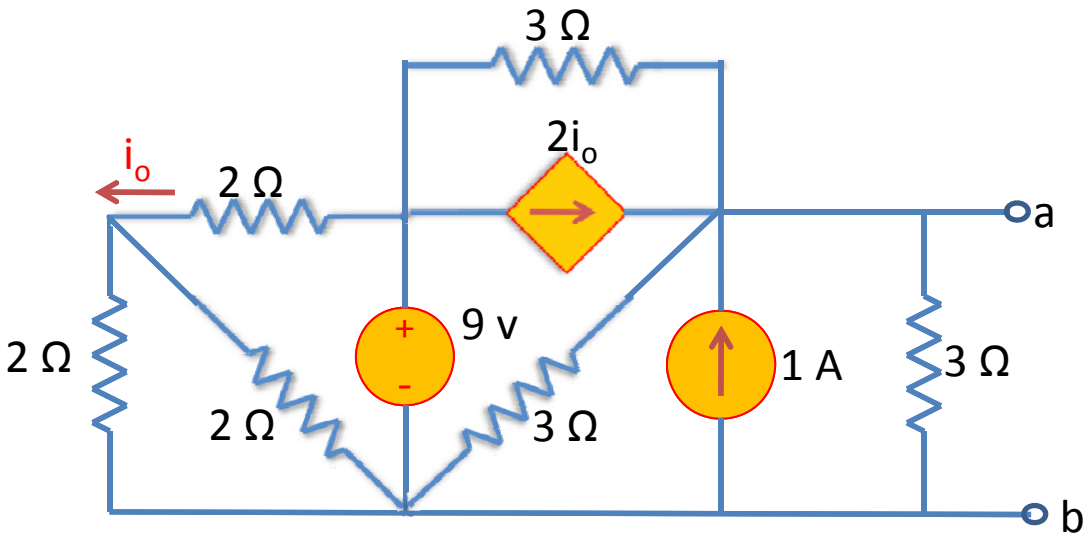
EECS 70A: Network Analysis

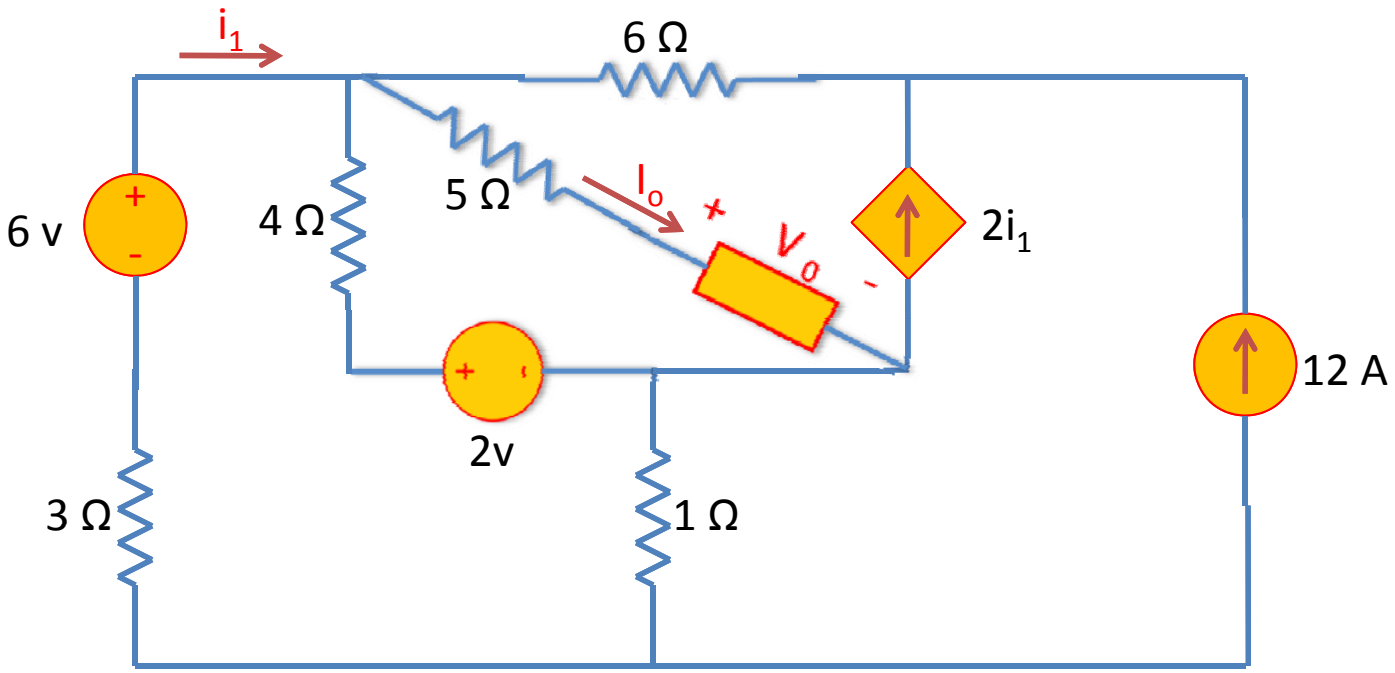
Homework #4

Due Friday, May 14, 2010.

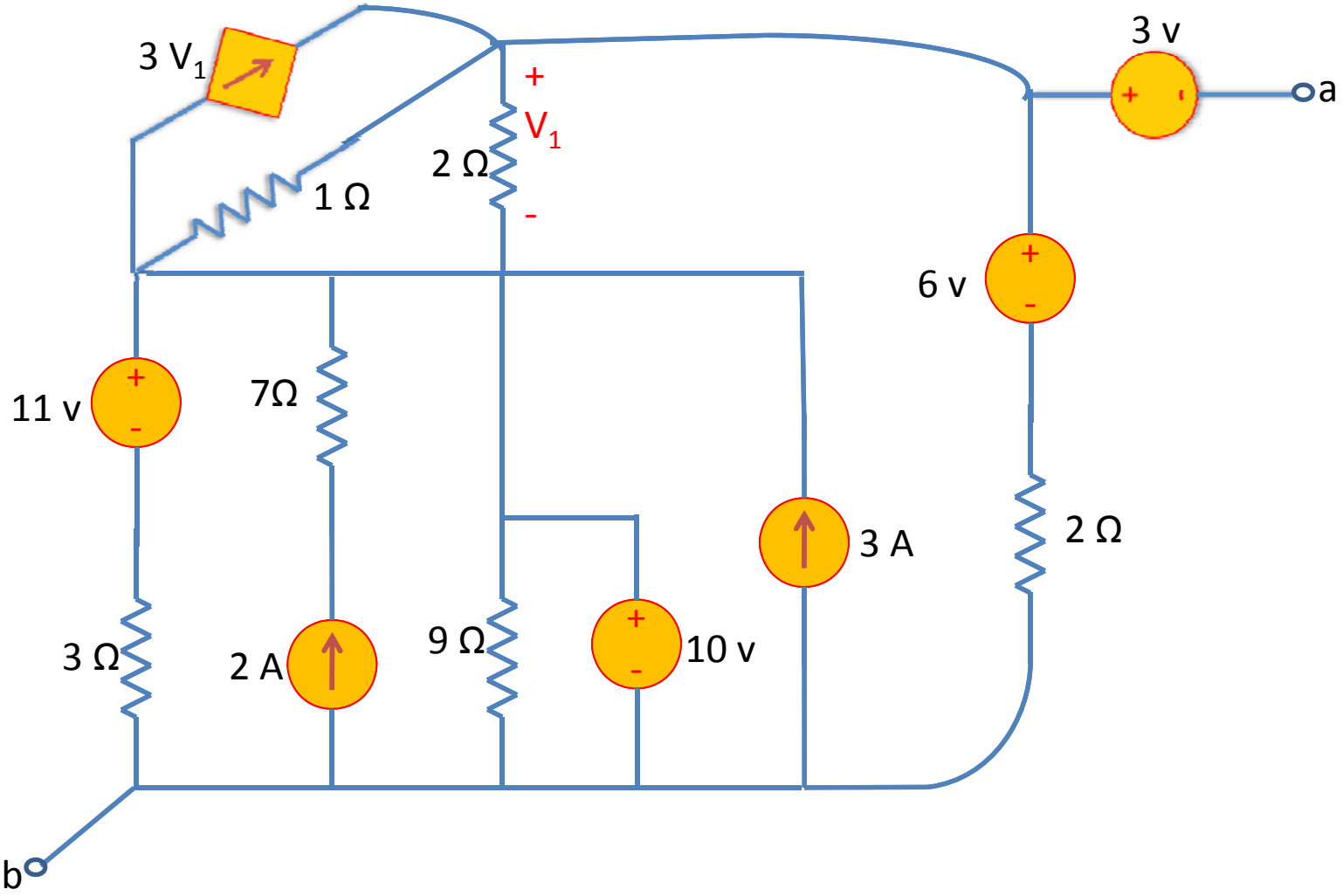
Problem1) Obtain the Thevenin and Norton equivalent as seen from a-b terminals:



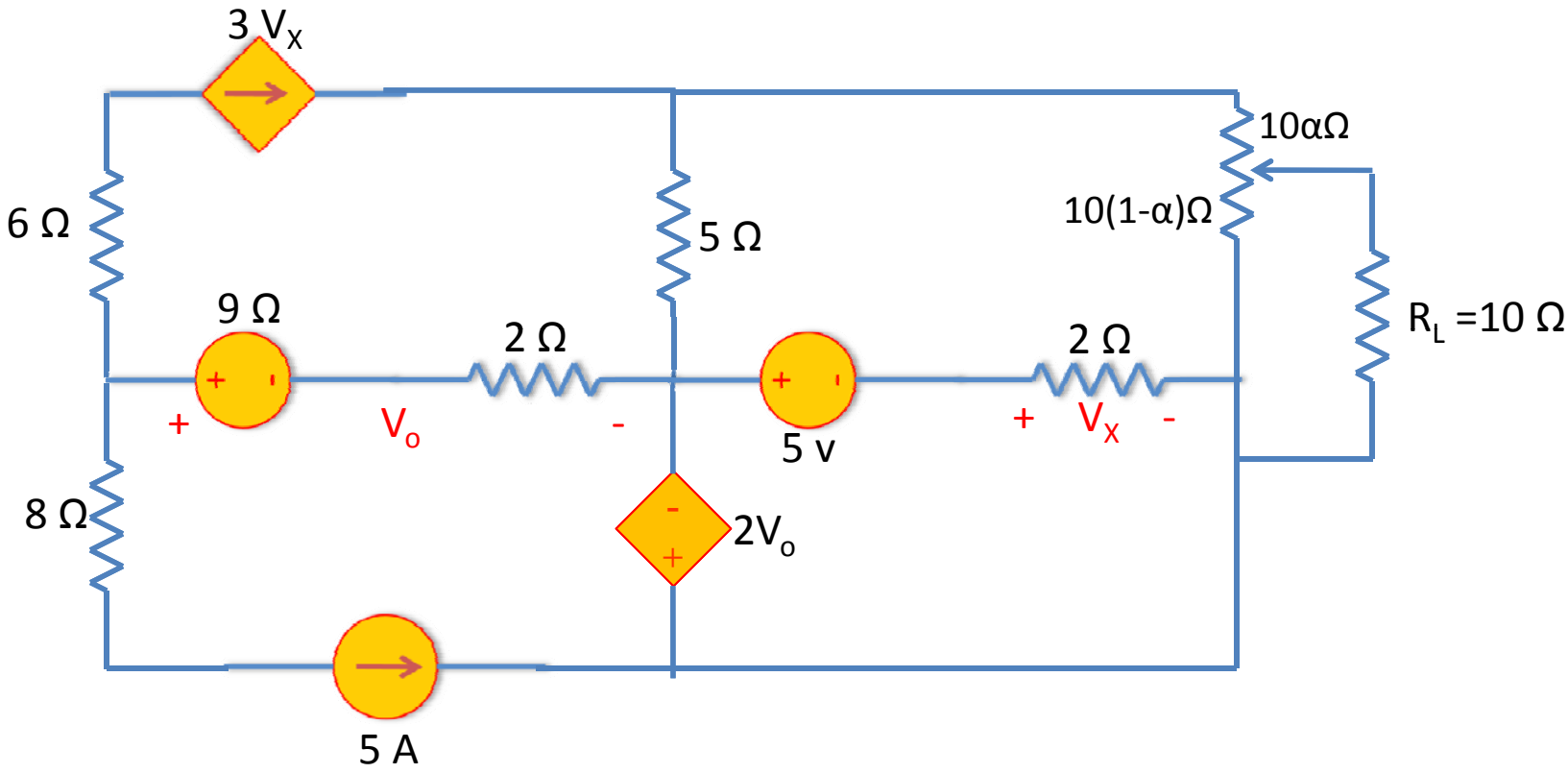
Problem2) Determine the relationship between V_o and I_o.



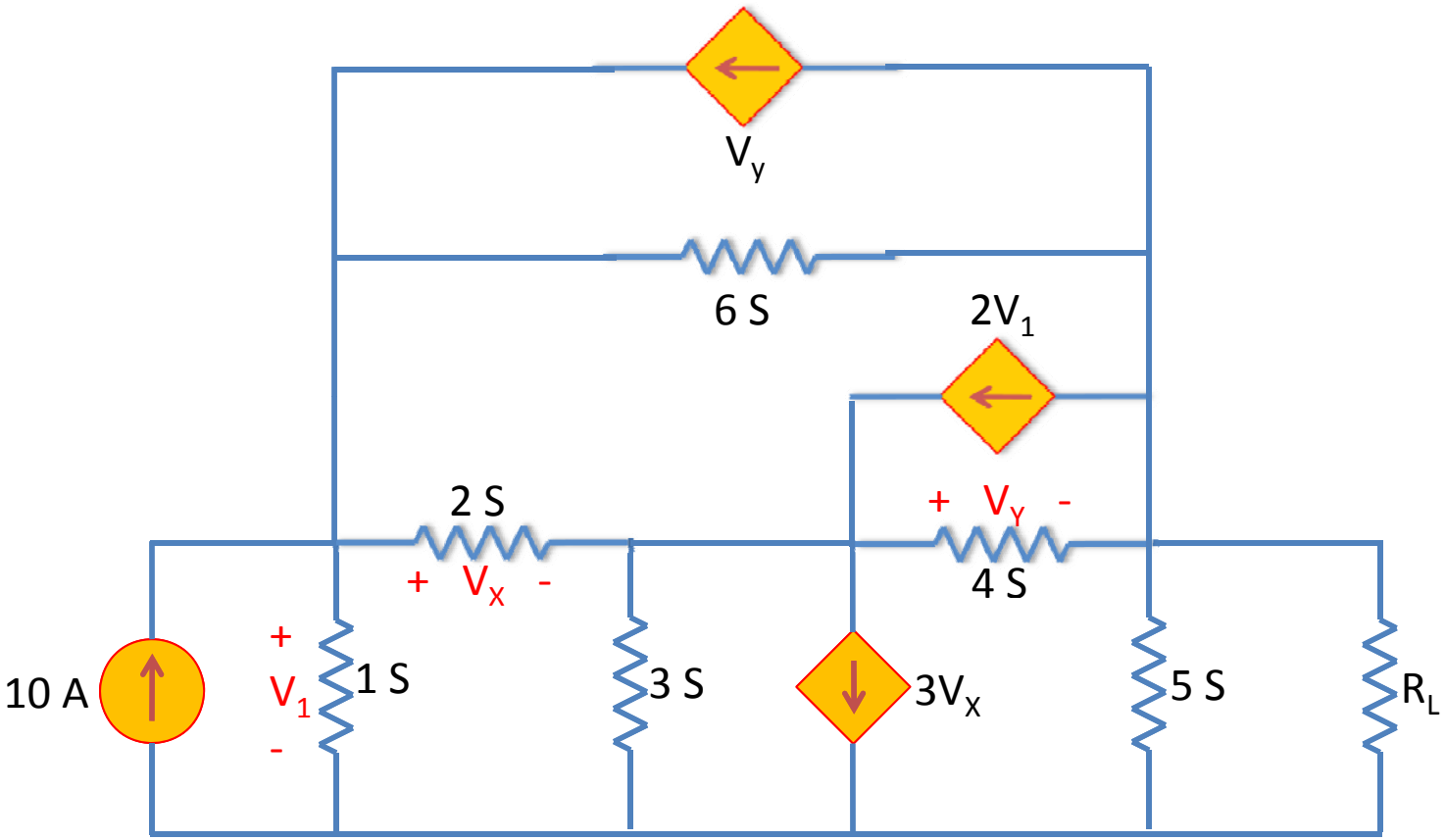
Problem3) Obtain the Norton equivalent.



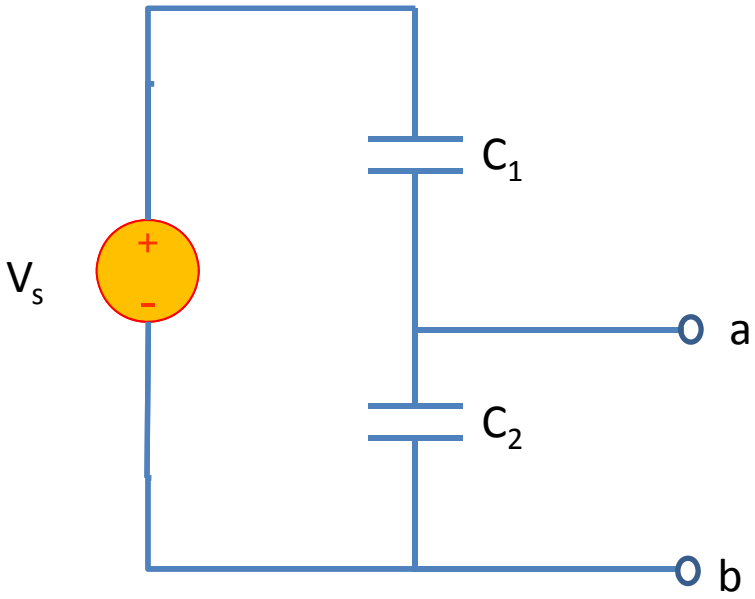
Problem4) Find the value for α, such that the power transferred to R_L is maximum.
What is the value for the maximum power.



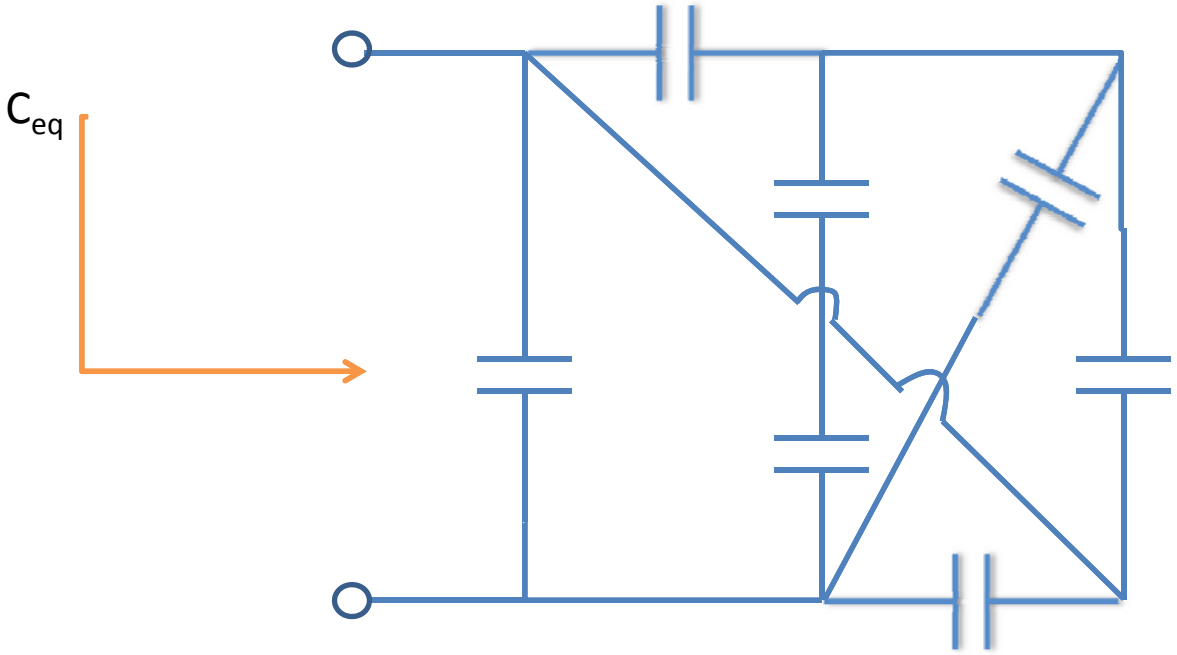
Problem 5) Find the maximum power transferred to R_L. [S]=[1/Ω] is the unit for conductance.



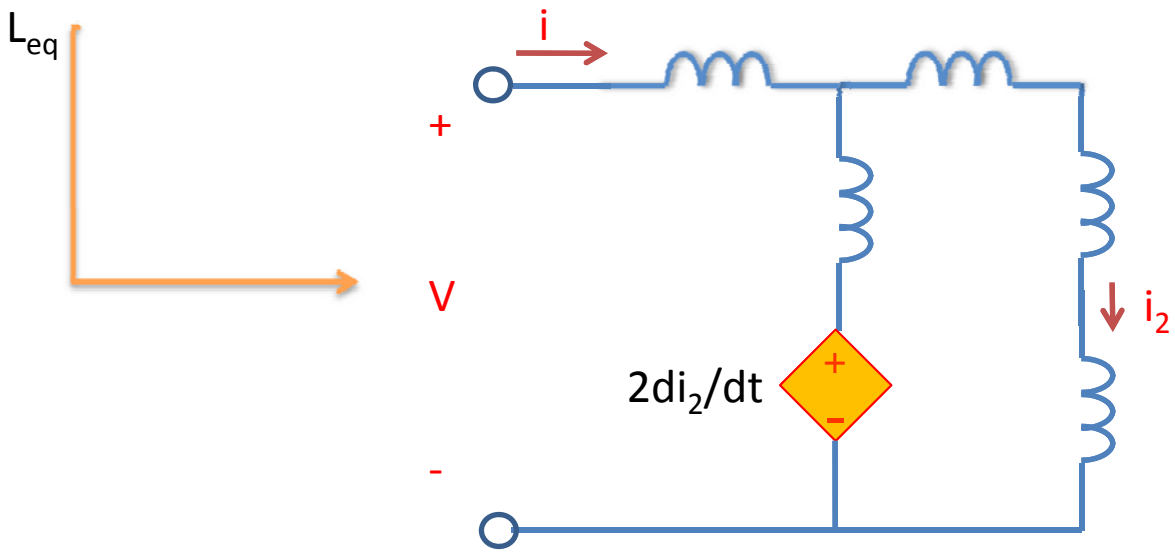
Problem6) Find the voltage across C_2.



Problem 7) Find the equivalent capacitance. All Capacitors have the value of 1mF.

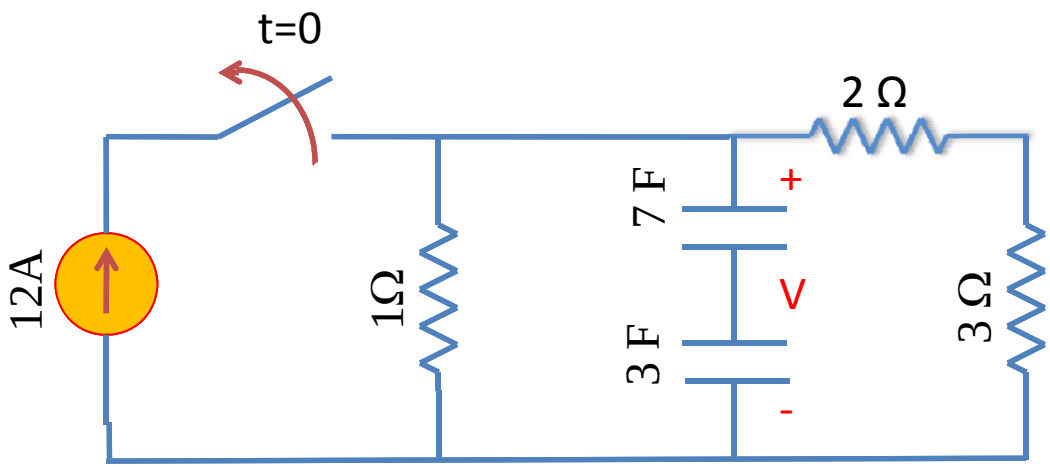


Problem8) Find the equivalent inductance. All inductors are 1H.

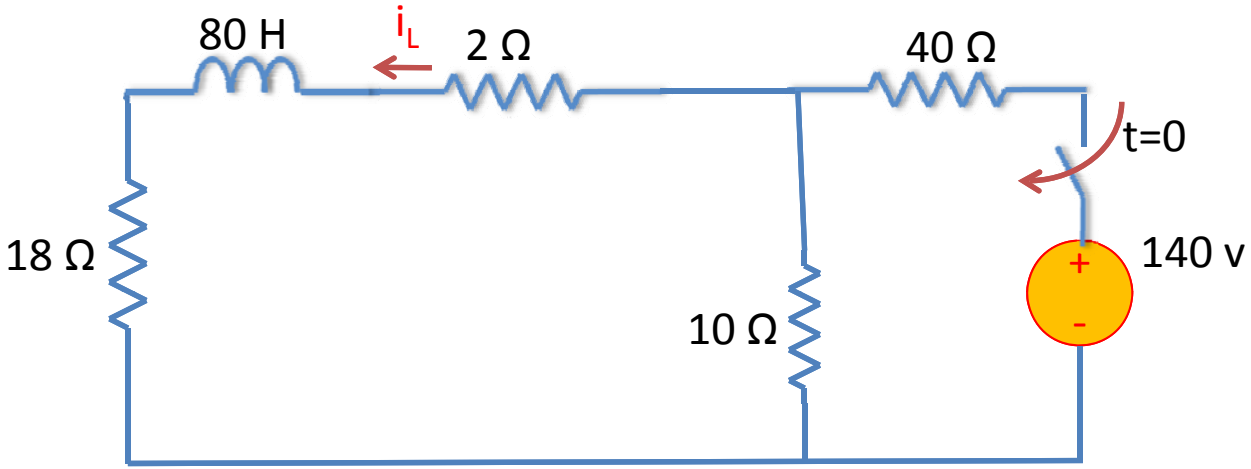


Hint: $V=L_{eq}\, di/dt$

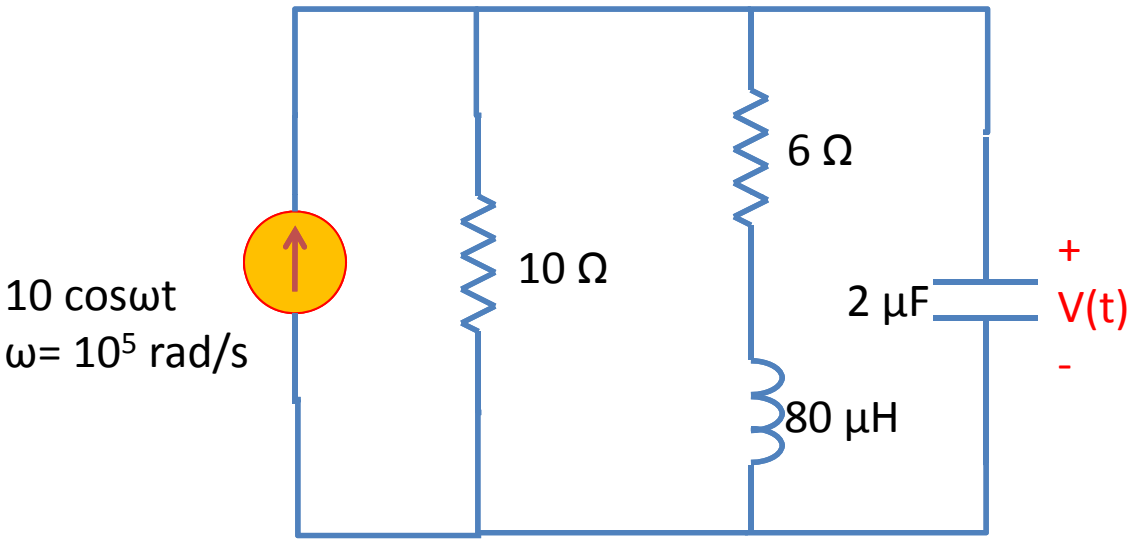
Problem 9) Switch opens at t=0, Find V(t) for t>0.



Problem10) Switch opens at t=0. Find the inductor current.



Problem 11) Find V(t).



(Monster problem-Extra credit: Part 2):Find the Thevenin & Norton equivalent circuit of the circuit below with respect to terminals a and b: