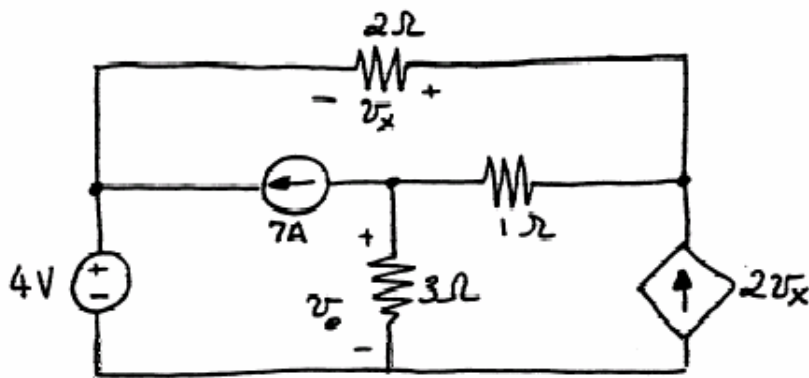


HOMEWORK #2

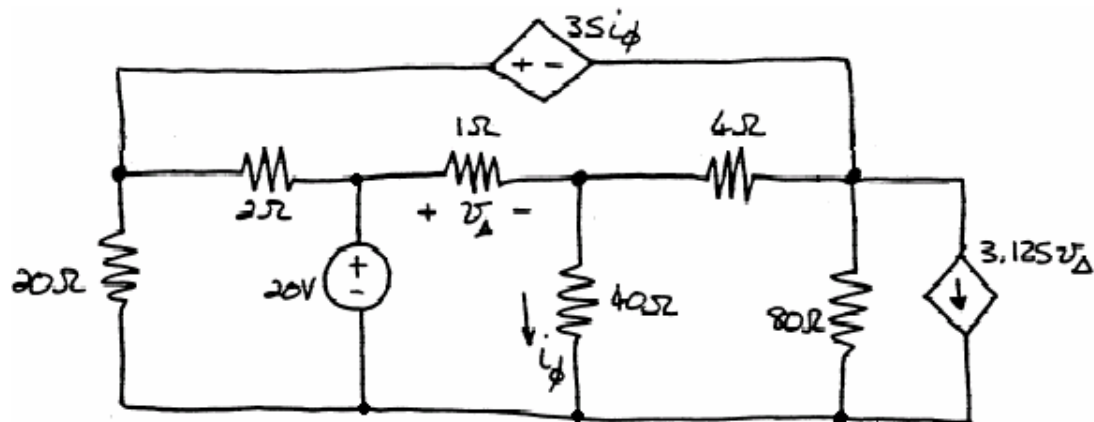
Solve the following problems using **any** or **combination** of the analysis techniques you learned:
 Node voltage method (i.e., KCL), Mesh current method (i.e., KVL),
 Thevenin Equivalent Circuit, Maximum Power Transfer, and Source Transformation,

SHOW YOUR WORK

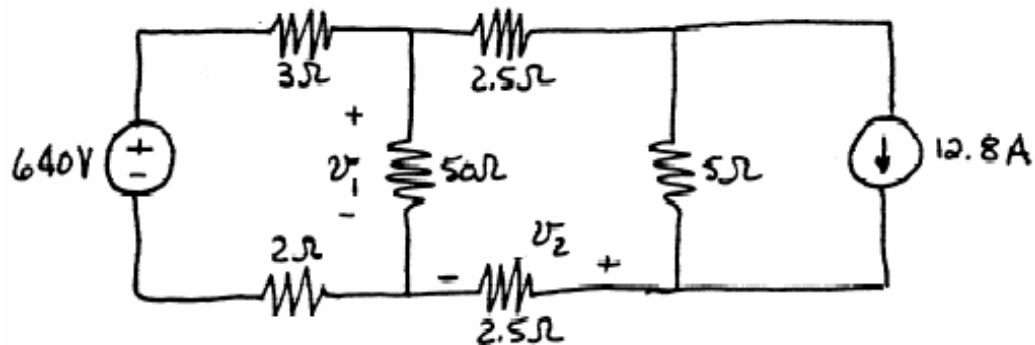
1. Find v_o in the circuit below.



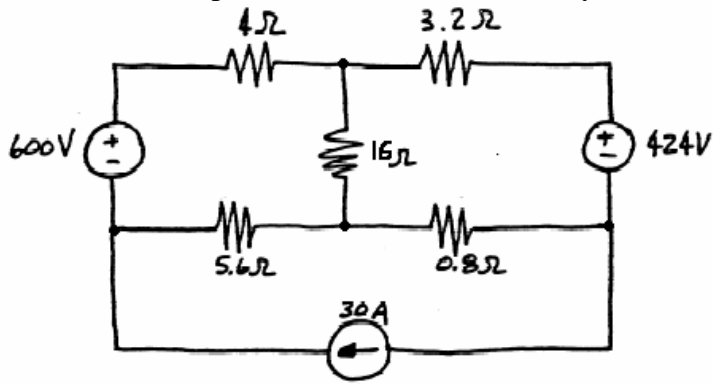
2. Calculate the power delivered by the 20 V source.



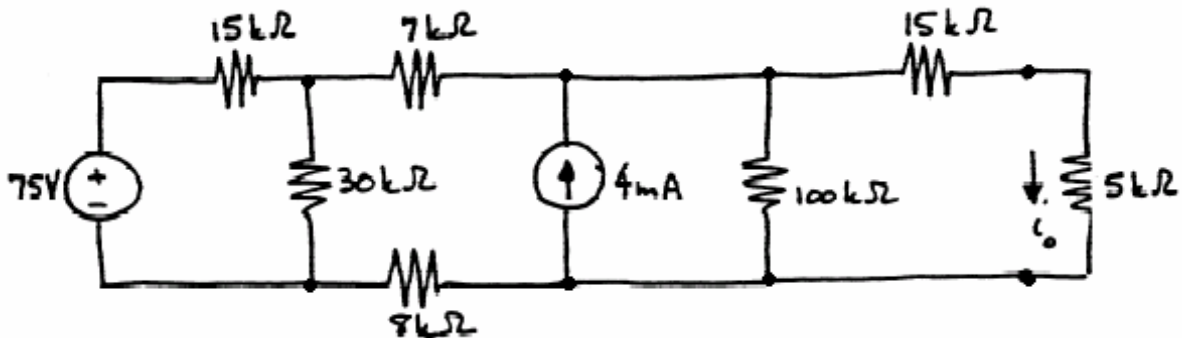
3. Find v_1 and v_2 .



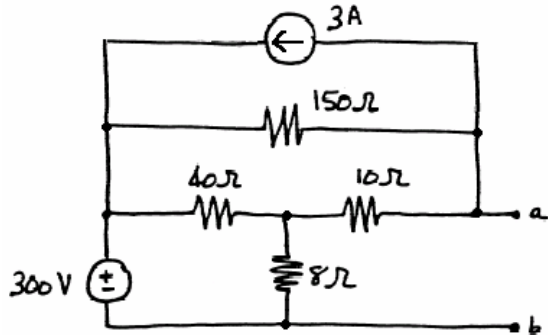
4. Calculate the power delivered/consumed by the 30 A source.



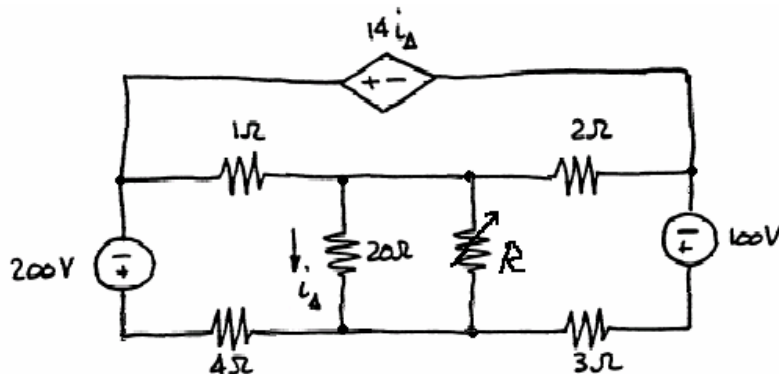
5. Find the current through the 5 kΩ resistor in the circuit, by converting the rest of the circuit to a Thevenin equivalent circuit.



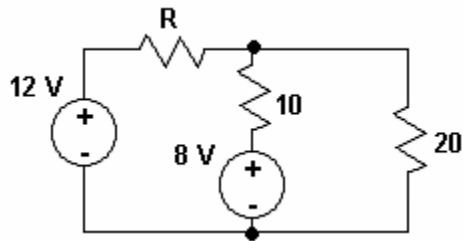
6. Find the Thevenin equivalent with respect to the terminals *a* and *b* for the circuit below.



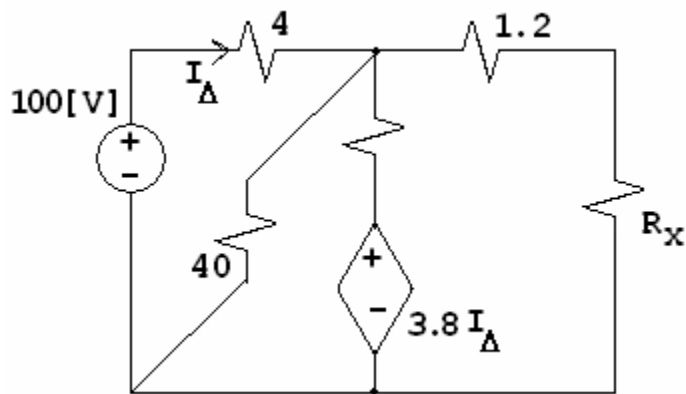
7. Find the value the resistor *R* that can deliver the maximum power to the resistor.



8. (a) Compute the value of R that results in maximum power transfer to the $10\text{-}\Omega$ resistor.
 (b) Find the maximum power.



9. The resistor R_x is adjusted until maximum power is delivered to the resistor. (i) What is the value of R_x ? (ii) What is the power delivered to R_x ?



10. Find V_o in the circuit below.

