NET1LAB Hybrid Class of NETWORK ANALYSIS I & Lab   Dr. Charles J. Kim
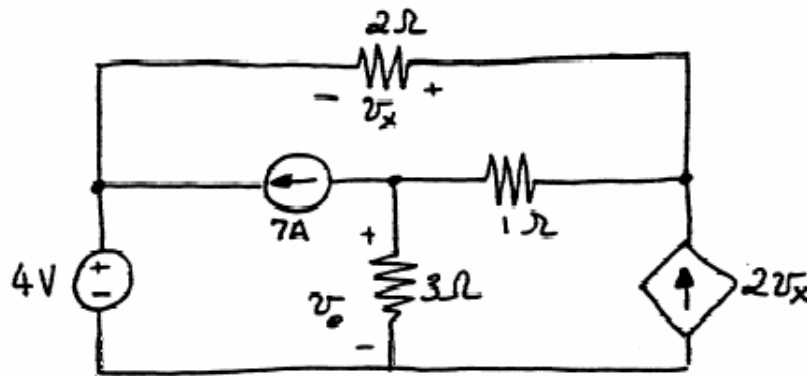
HOMEWORK #2

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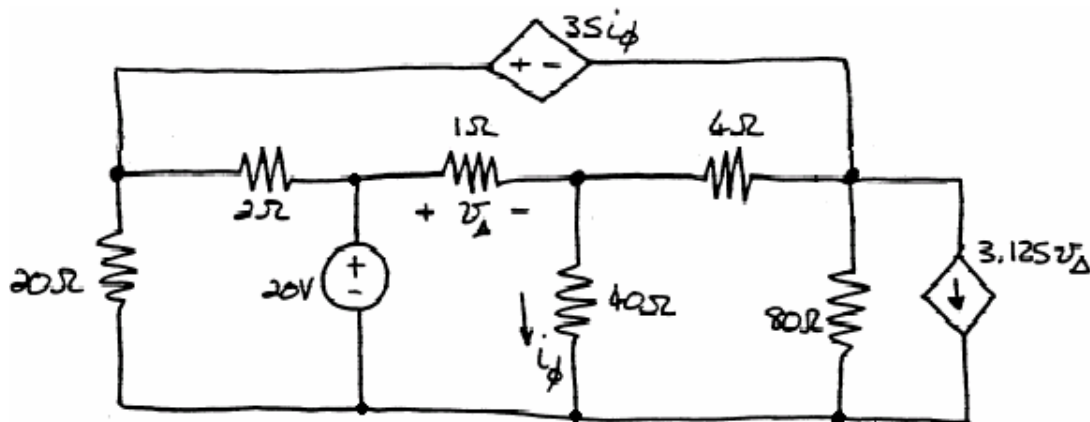Node voltage method (i.e., KCL), Mesh current method (i.e., KVL),
Thevenin Equivalent Circuit, Maximum Power Transfer, and Source Transformation,
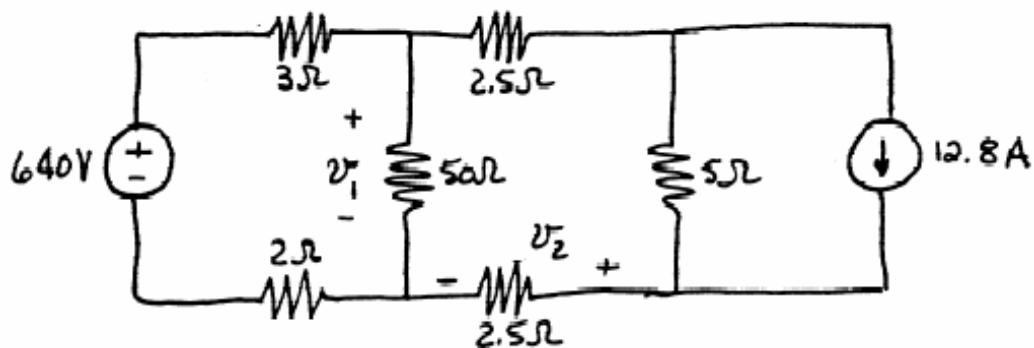
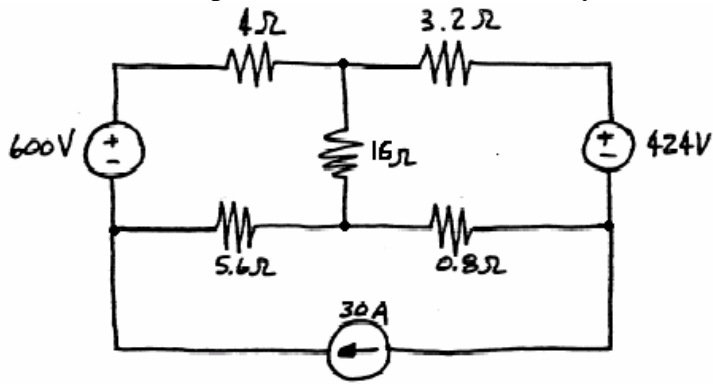### SHOW YOUR WORK

1. Find v_o in the circuit below.

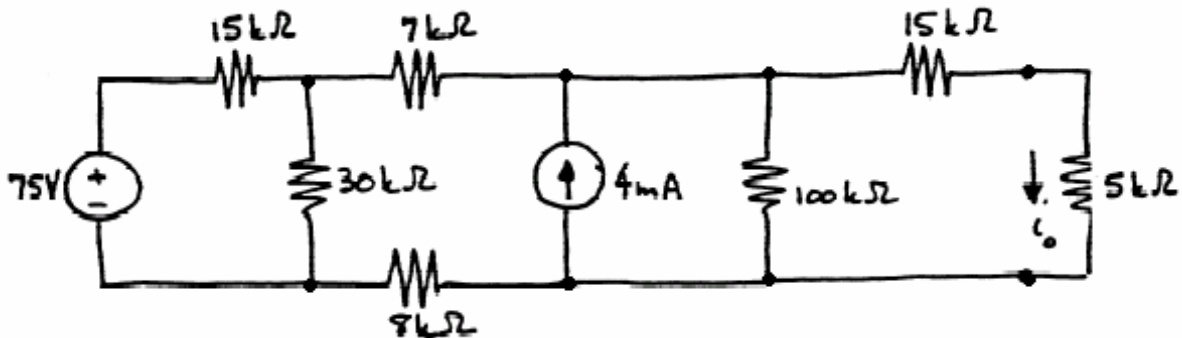
2. Calculate the power delivered by the 20 V source.
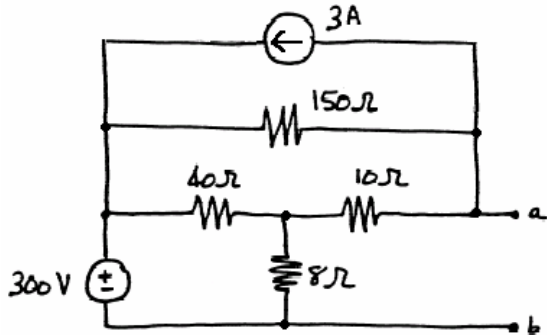

3. Find v_1 and v_2.

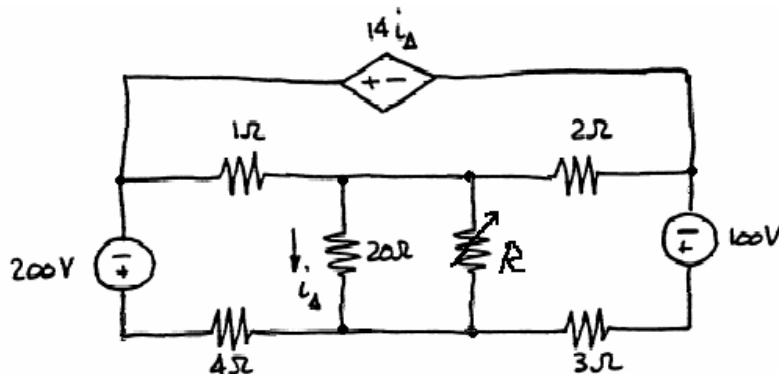4. Calculate the power delivered/consumed by the 30 A source.

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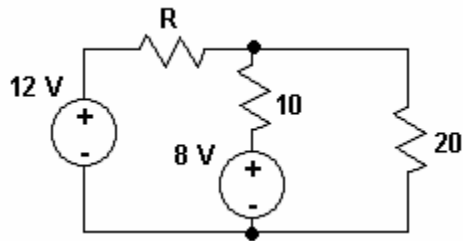

6. Find the Thevenin equivalent with respect to the terminals a and b for the circuit below.
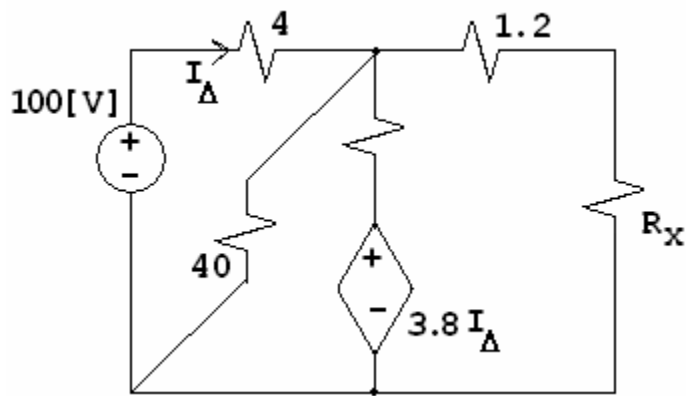

7. Find the value the resistor R that can deliver the maximum power to the resistor.

8. (a) Compute the value of **R** that results in maximum power transfer to the 10-Ω resistor.
   (b) Find the maximum power.

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

10. Find V_o in the circuit below.