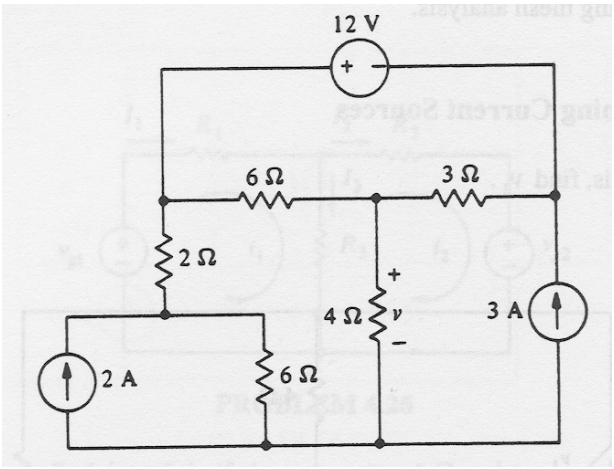
UNIVERSITY OF CALIFORNIA AT BERKELEY
College of Engineering
Dept. of Electrical Engineering and Computer Sciences

EECS 40 **Fall 2003**

Homework Assignment #3
Due at 11 AM in 240 Cory on Friday, 9/19/03
* Be sure to put your name and **Discussion Section number** on your paper

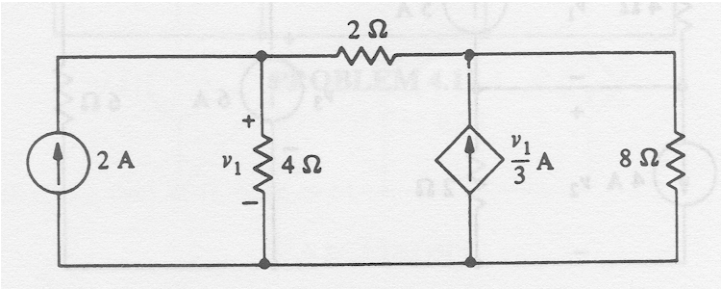
Problem 1: Circuit Analysis Methods



Find the current in the 3 Ω resistor
- **a)** using the node-voltage method.
- **b)** using the mesh-current method.

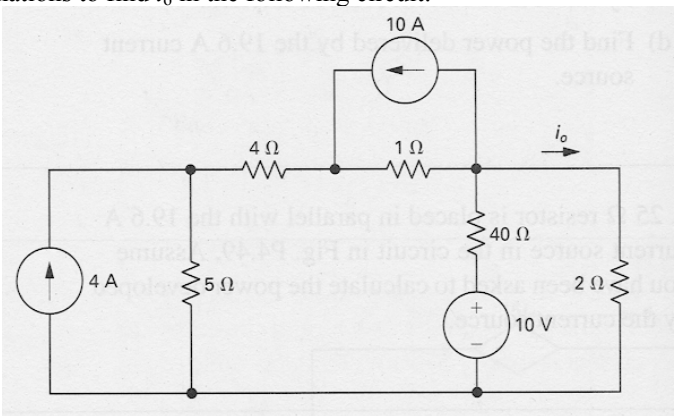
Problem 2: Nodal Analysis of a circuit with dependent sources

Find the power absorbed by the 8 Ω resistor in the circuit below, using nodal analysis.



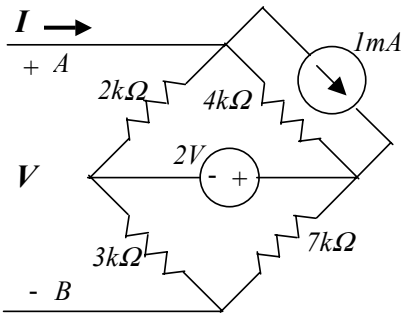
Problem 3: Source Transformation

Use a series of source transformations to find i_o in the following circuit:



Problem 4: Thévenin Equivalent Circuit

Given the following circuit:



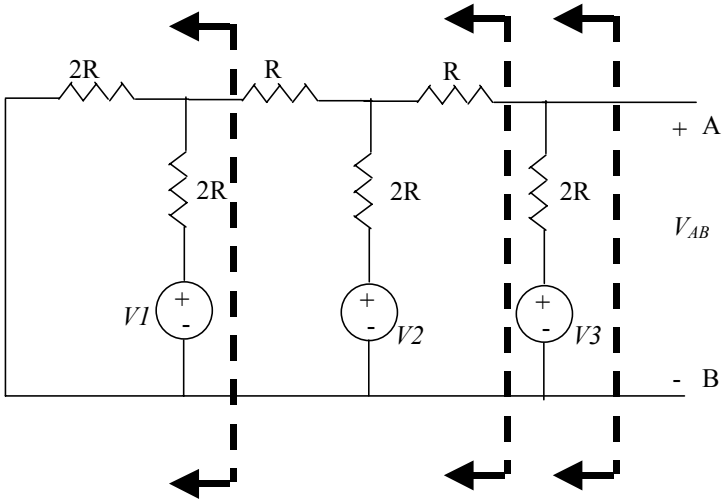
a) Find the Thévenin equivalent with respect to the terminals A,B:

b) Plot the *I-V* characteristic for this circuit.

c) What is the power delivered by the circuit if a 5 kΩ resistor is connected between A and B?

Problem 5: Superposition

Consider the following circuit:



a) Find V_{AB} using superposition.

b) Find V_{AB} by applying Thévenin's theorem successively to the circuit to the left of the dotted lines.