

**ELECTRICAL ENGINEERING DEPARTMENT
CALIFORNIA POLYTECHNIC STATE UNIVERSITY**

EE 112 Electric Circuit Analysis I

FINAL EXAM

Winter 2004

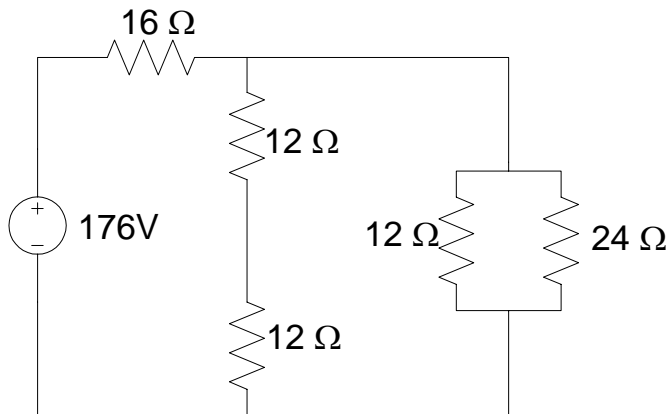
Name: _____ **Last 4 digits of Student ID:** _____

Section #: _____

1 (20)	2 (20)	3 (15)	4(15)	5 (15)	6(15)	Total (100)

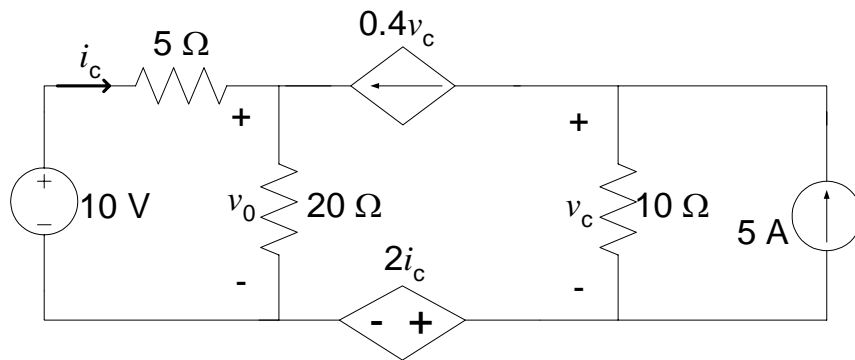
PROBLEM #1

- (a) Find the power supplied by the voltage source and the power absorbed by the $24\ \Omega$ resistor in the following figure.
- (b) Repeat (a) if the $176\ \text{V}$ source is increased to $300\ \text{V}$.



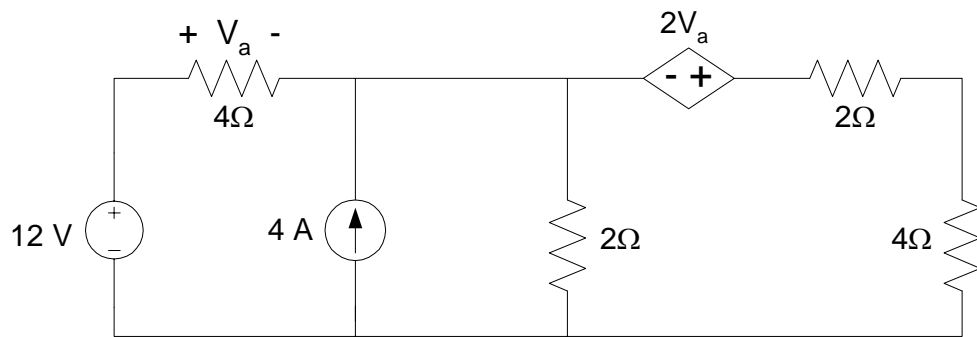
PROBLEM #2

Use the principle of superposition to find v_0 and power absorbed by the 20Ω resistor.



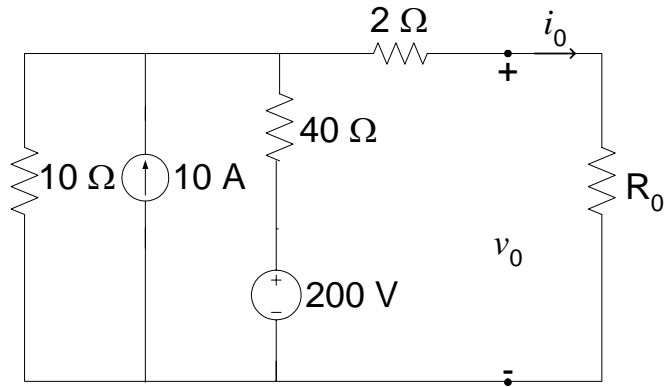
PROBLEM #3

Use Norton's theorem to determine the current flowing through the right-hand $4\ \Omega$ resistor in the figure below.



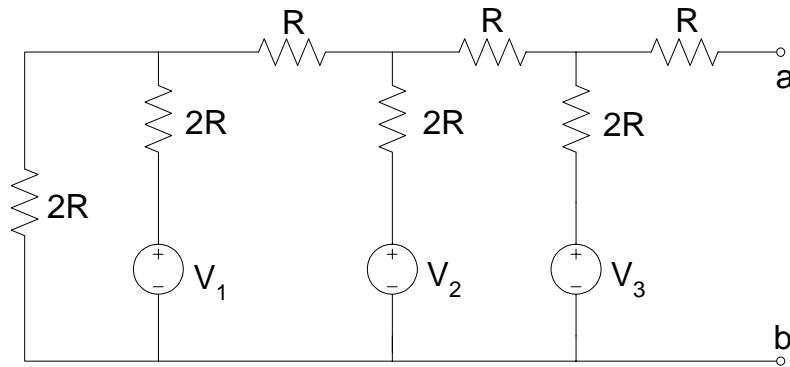
PROBLEM #4

Determine i_0 and v_0 in the following circuit when R_0 is 0, 2, 10, 20, and 50 Ω .



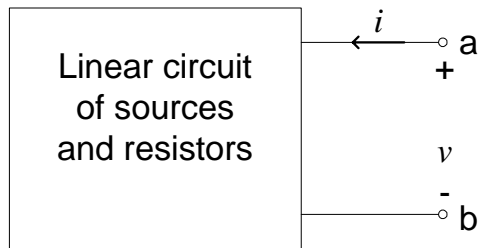
PROBLEM #5

Find the Thevenin equivalent seen at a-b for the circuit below. (*Hint: for this type of problem, the more natural solution technique is source transformation.*)

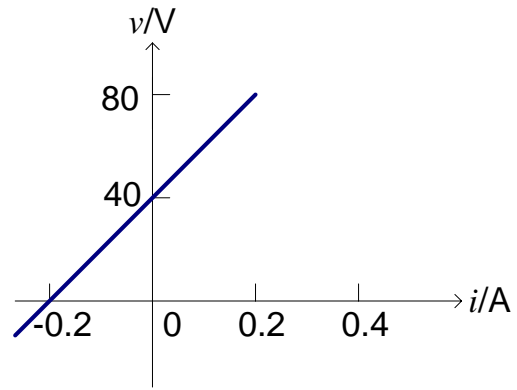


PROBLEM #6

The linear resistive circuit in figure (a) is found experimentally to have the v - i relationship plotted in figure (b). Find the maximum power that can be absorbed by placing a load resistor across terminals a-b?



(a)



(b)