

ECSE 2010
Electric Circuits
Exam 1
Spring 2008

Name _____

Section (please circle one)

MWR
10-11

MWR
11-12

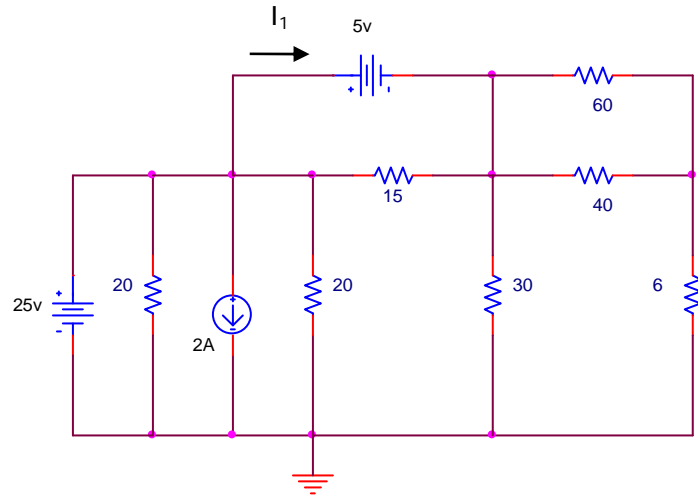
Problem No.	Pts.	Score
1	20pts	
2	20pts	
3	20pts	
4	20pts	
5	20pts	
Total	100pts	

Please Note:

- * Place all your answers in the spaces provided.
- * You MUST show your work to receive any credit.

Problem 1 (20pts)

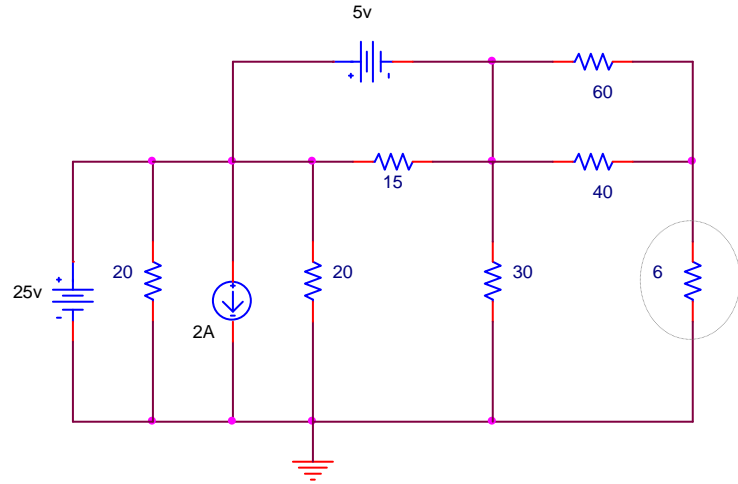
a.) Find I_1 in the circuit shown. (10pts)



I_1	
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Problem 1 (cont)

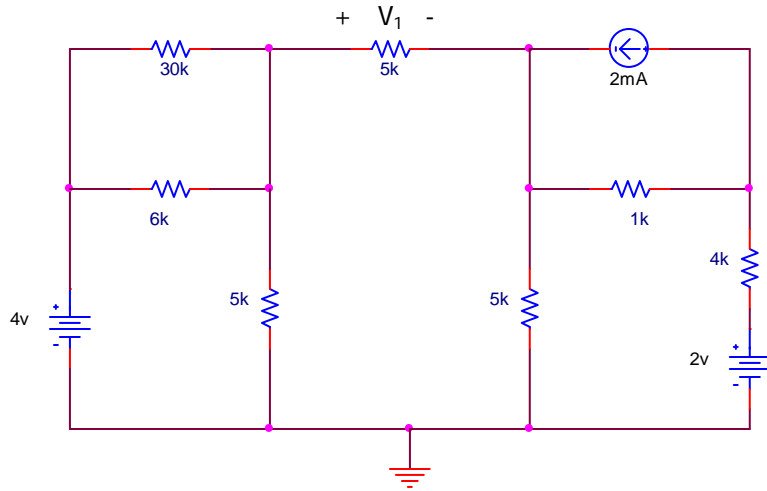
b.) Find the power absorbed by the 6 ohm resistor in the circuit shown. (10pts)



P	
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Problem 2 (20pts)

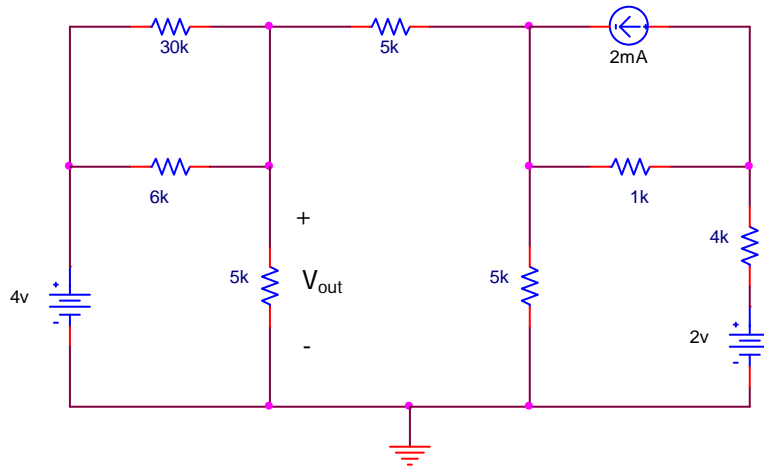
a.) Find V_1 (across the designated 5k resistor) due to each of the sources using superposition for the circuit shown. (15pts)



V_1 (4v)	
V_1 (2mA)	
V_1 (2v)	

Problem 2 (cont)

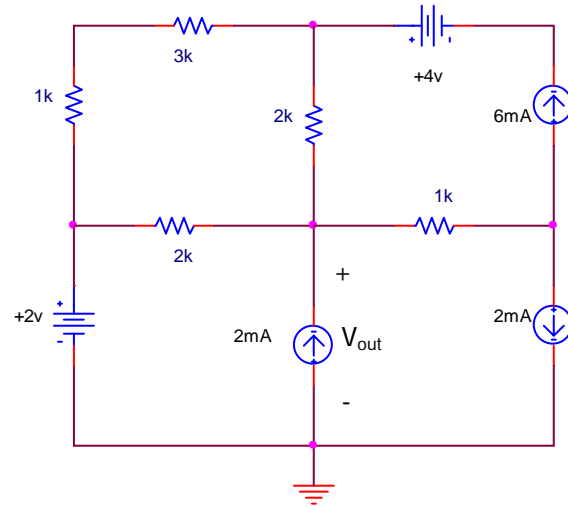
b.) Find V_{out} across the designated 5k resistor in the circuit shown. (5pts)



V_{out}	
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Problem 3 (20pts)

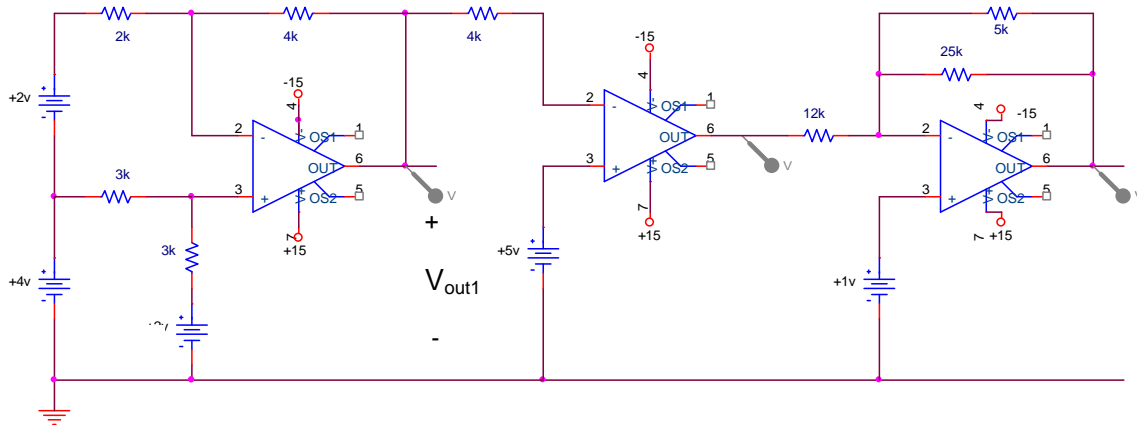
Find V_{out} for the circuit shown using your choice of either mesh or nodal analysis.



V_{out}	
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Problem 4 (20pts)

Assume that all the Op Amps have ± 15 volt supplies for the following circuits.

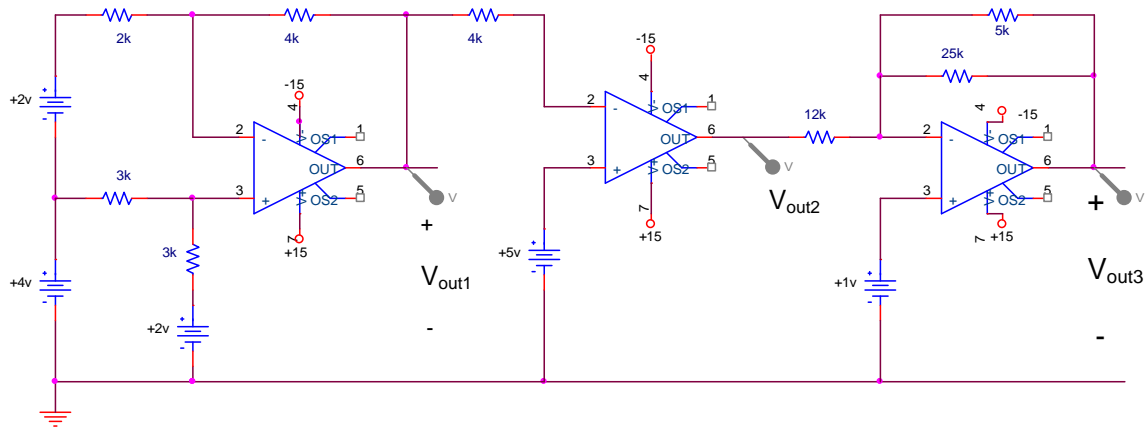


a.) Find V_{out1} shown the above circuit. (10pts)

V_{out1}	
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Problem 4 (cont)

b.) Find V_{out2} in the circuit shown below. (5pts)



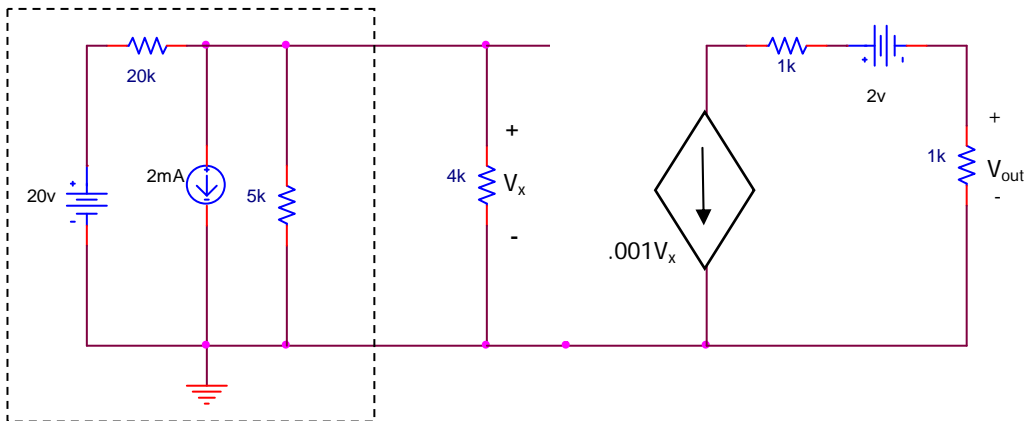
V_{out2}	
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c.) Find V_{out3} (using the circuit shown above). (5pts)

V_{out3}	
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Problem 5 (20pts)

Given the following circuit:



a.) Find the Thevenin equivalent circuit voltage (V_{TH}) for what is inside the dashed box. (5pts)

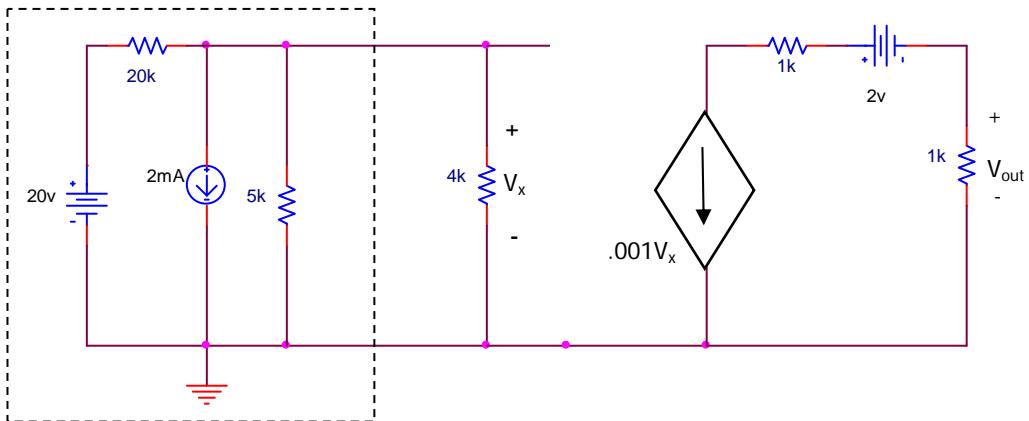
V_{TH}	
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b.) Find the equivalent resistance ($R_{Thevenin}$) that a multimeter would read across the two wires that exit the box (without the rest of the circuit connected). (5pts)

R_{TH}	
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Problem 5 (cont)

Given the following circuit:



c.) Find the output voltage (V_{out}) in the circuit shown above. (10pts)

V_{out}	
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Extra space (if needed)

Name _____

Extra space (if needed)

Name _____