



Sirindhorn International Institute of Technology
Thammasat University at Rangsit
School of Information, Computer and Communication Technology

ECS 303: Problem Set 6

Semester/Year: 2/2009

Course Title: Basic Electrical Engineering

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Course Web Site: <http://www.siit.tu.ac.th/prapun/ecs303/>

Due date: December 18, 2009 (Friday), 10:39 AM

Instructions

1. ONE question from part A will be graded. Of course, you do not know which problems will be selected; so you should work on all of them.
2. Part B will be read in detail. Your answer does not affect your HW score. However, it will have significant effect on your participation score which is much more than this HW score.
3. **Late submission will not be accepted.**
4. **Write down all the steps** that you have done to obtain your answers. You may not get full credit even when your answer is correct without showing how you get your answer.

Part A:

The questions in this part are assigned from the following textbook:

C.K. Alexander and M.N.O. Sadiku, *Fundamentals of Electric Circuits*, **4th ed.**, McGraw-Hill, International Edition, 2009.

Please submit your solutions for the following questions

- Chapter 4: 22, 26, 59, 66
- Chapter 5: 20, 30, 34, 37, 47

Chapter 4, Problem 22.

For the circuit in Fig. 4.90, use source transformation to find i .

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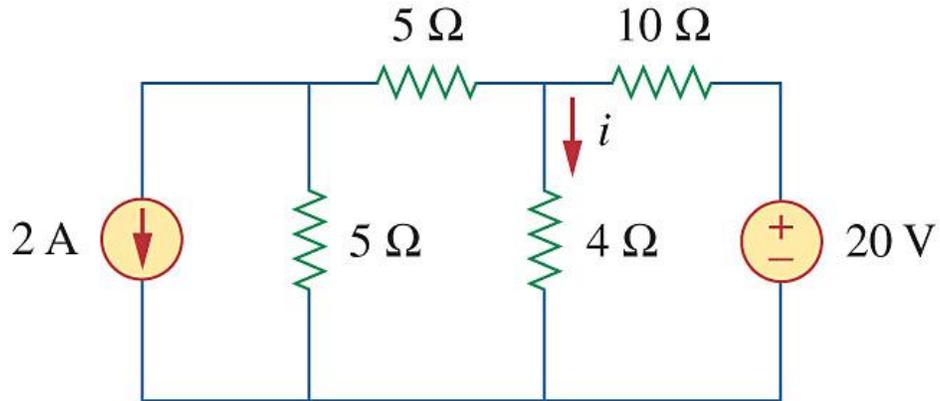


Figure 4.90

Chapter 4, Problem 26.

Use source transformation to find i_o in the circuit of Fig. 4.94.

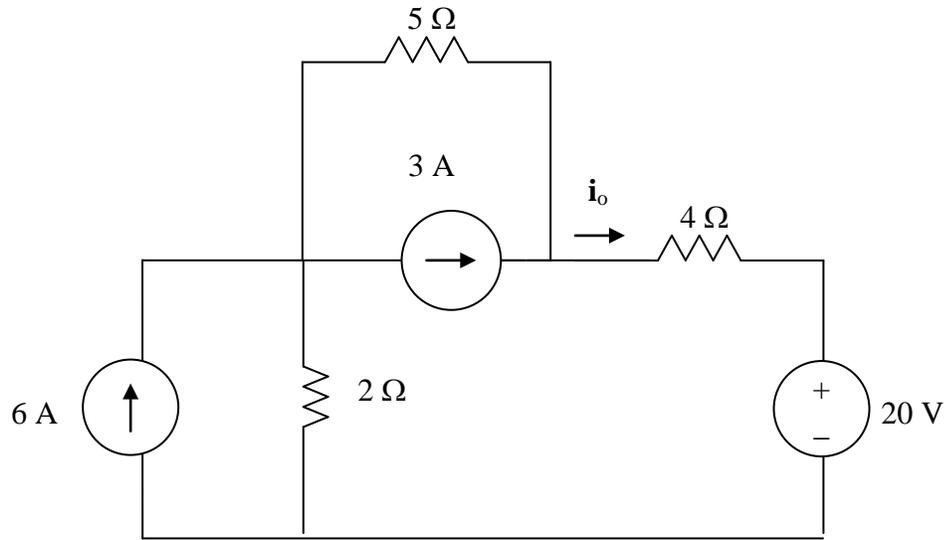


Figure 4.94 For Prob. 4.26.

Chapter 4, Problem 59.

Determine the Thevenin and Norton equivalents at terminals *a-b* of the circuit in Fig. 4.125.

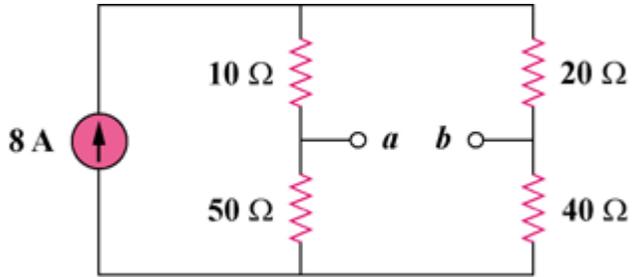


Figure 4.125

Chapter 4, Problem 66.

Find the maximum power that can be delivered to the resistor R in the circuit in Fig. 4.132.

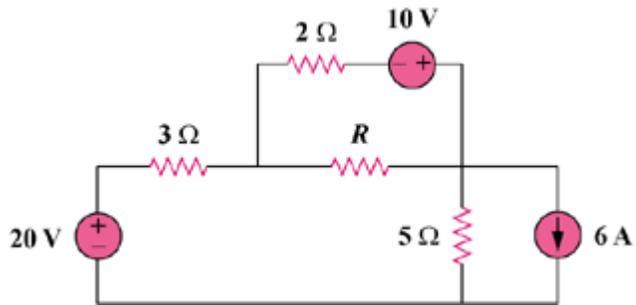


Figure 4.132

Chapter 5, Problem 20

In the circuit in Fig. 5.59, calculate v_o if $v_s = 0$.

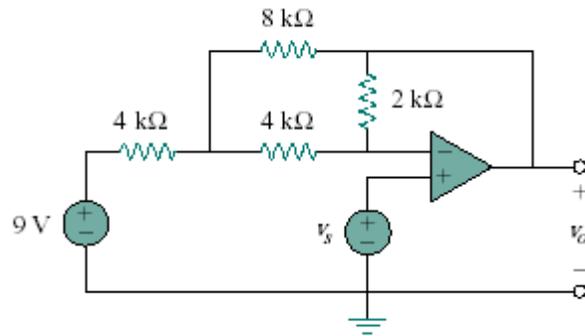


Figure 5.59

Chapter 5, Problem 30

In the circuit shown in Fig. 5.68, find i_x and the power absorbed by the 20- Ω resistor.

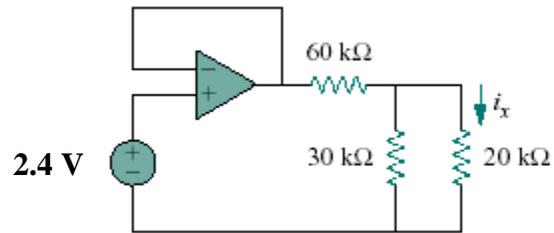


Figure 5.68

Chapter 5, Problem 34.

Given the op amp circuit shown in Fig. 5.72, express v_o in terms of v_1 and v_2 .

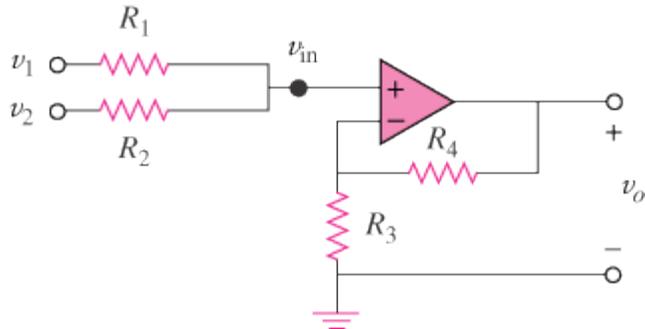


Figure 5.72

Chapter 5, Problem 37

Determine the output of the summing amplifier in Fig. 5.74.

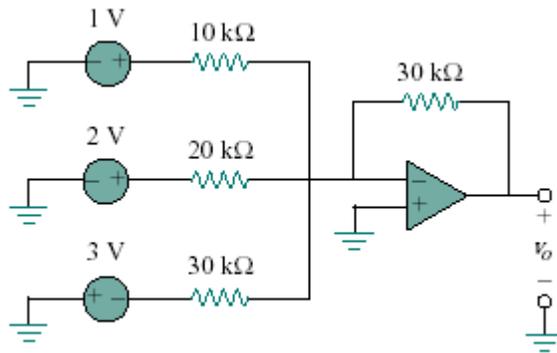


Figure 5.74

Chapter 5, Problem 47.

The circuit in Fig. 5.79 is for a difference amplifier. Find v_o given that $v_1 = 1\text{V}$ and $v_2 = 2\text{V}$.

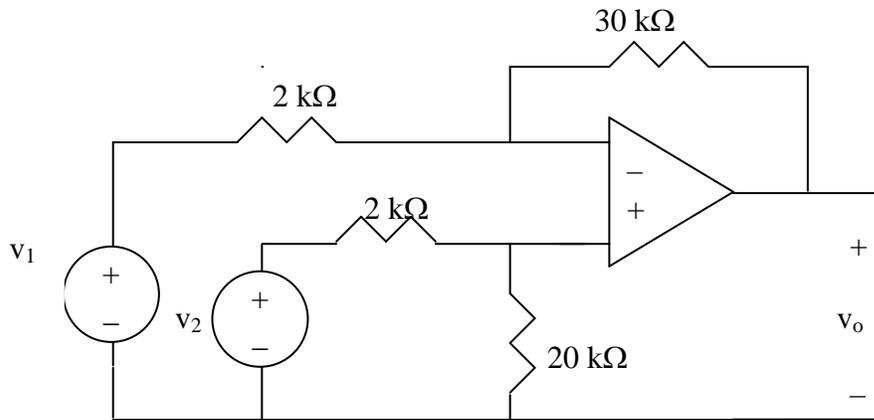


Figure 5.79 For Prob. 5.47.

Part B

The class participation score for this class is judged from how much you **actively** participate in the class discussion both inside and outside of the classroom. Please honestly answer the following questions **on a new sheet of paper**. Your answer may influence the actual score.

1. How many times have you been absent from the class? Are there any specific reason(s)? Please explain.
2. How many times have you been late (> 5 mins) for the class? Are there any specific reason(s)? Please explain.
3. How many times have you left the class early (> 5 mins)? Are there any specific reason(s)? Please explain.
4. How many times have you correctly informed the instructors the typo or mistake on the whiteboard/slides/hw/etc? Please provide some short description about each of the issues.
5. How many times have you discussed with the instructor about the class? (Ask questions, express concerns, etc.)
6. On the scale of 10, what score should you get for the class participation at this point? Please explain.
7. Are there any obstacles that prevent you from learning the material presented in this class?

You will not get part B of your HW back.