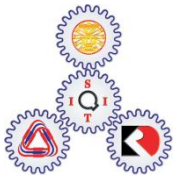

Sirindhorn International Institute of Technology
Thammasat University at Rangsit
School of Information, Computer and Communication Technology

ECS 203: Problem Set 8

Semester/Year: **2/2015**
Course Title: Basic Electrical Engineering
Instructor: Asst. Prof. Dr. Prapun Suksompong (prapun@siit.tu.ac.th)
Course Web Site: http://www2.siit.tu.ac.th/prapun/ecs203/

Due date: Mar 29, 5 PM

Instructions

1. Solve all problems. (5 pt)
   a. Write your name and ID on the top of **every** submitted page.
   b. For each part, write your explanation/derivation and answer in the space provided.
2. ONE sub-question will be graded (5 pt). Of course, you do not know which part will be selected; so you should work carefully on all of them.
3. There is no need to submit (or even print out) page 1 (this cover sheet).
4. Late submission will be rejected.
5. ***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.

Questions

1) [Alexander and Sadiku, 2009, Q5.37] Determine the output of the summing amplifier in Figure 1.

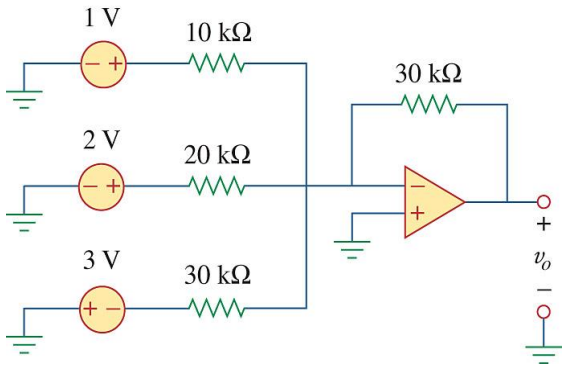

Figure 1

2) [Alexander and Sadiku, 2009, Q5.47] Consider the circuit in Figure 2. Find v_o given that v_1 =1V and v_2 = 2V

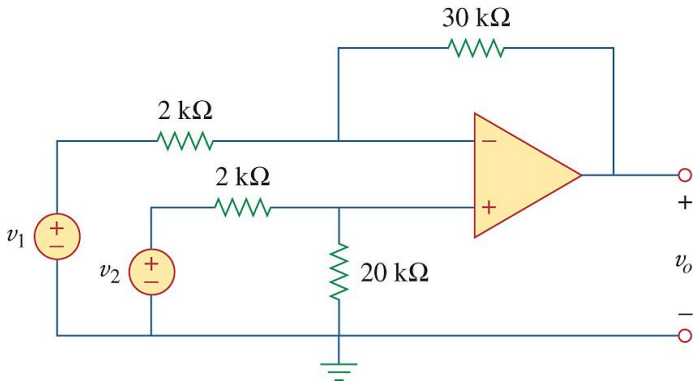

Figure 2

Hint: It is a difference amplifier.

3) [Alexander and Sadiku, 2009, Q5.29] Determine the voltage gain v_o/v_i of the op amp circuit in Figure 3.

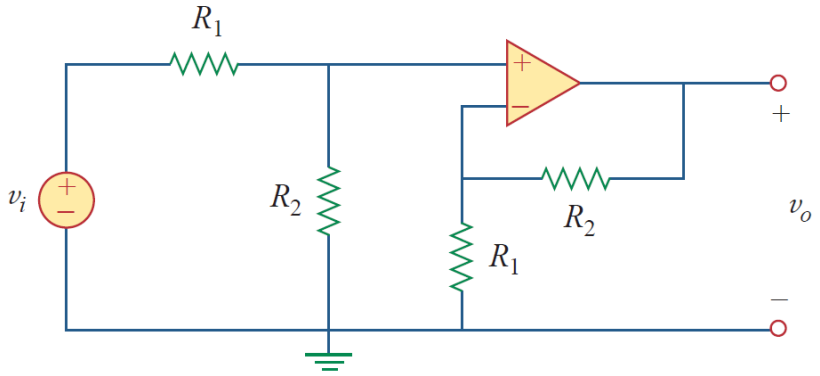

Figure 3

4) [Alexander and Sadiku, 2009, Q5.21] Use **superposition theorem** to calculate v_o in the op amp circuit of Figure 4.

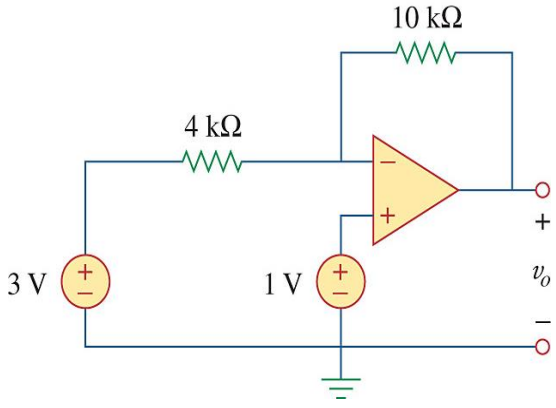

Figure 4

5) [Alexander and Sadiku, 2009, Q5.57] Find v_o in the op amp circuit of Figure 5.

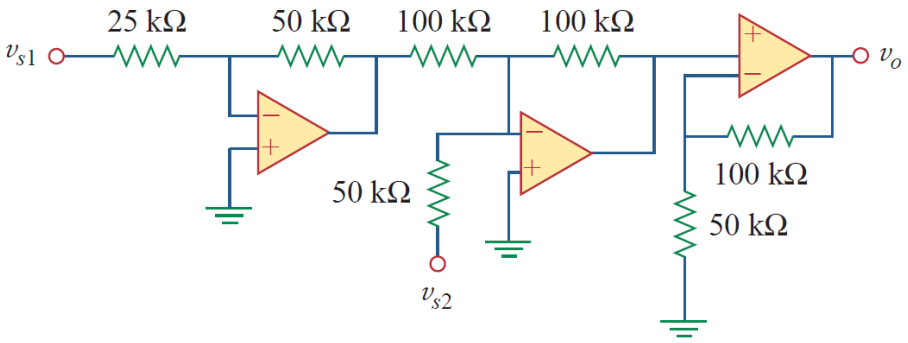

Figure 5