

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

ECS 203: Problem Set 1

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.siiit.tu.ac.th/prapun/ecs203/>

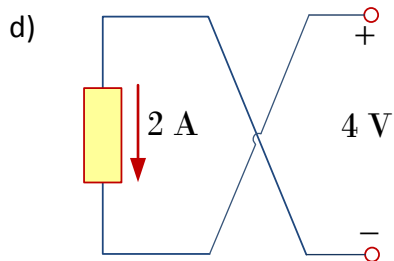
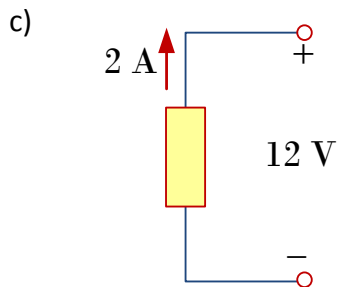
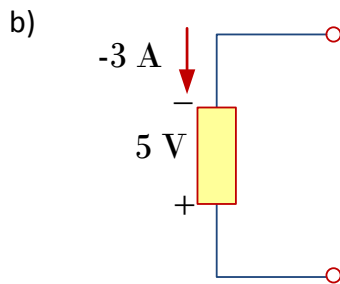
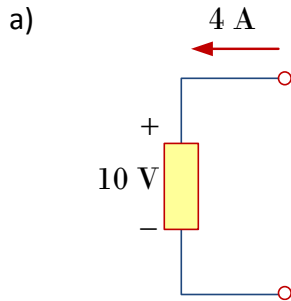
Due date: Jan 25, 5 PM

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) Find the power absorbed by each element below. (Note that if the power is actually supplied by the element, then your corresponding answer will be negative.)



[Based on Alexander and Sadiku, 2009, Q1.16]

- 2) Calculate the power absorbed by each element in Figure 1. (Note that if the power is actually supplied by the element, then your corresponding answer will be negative.)

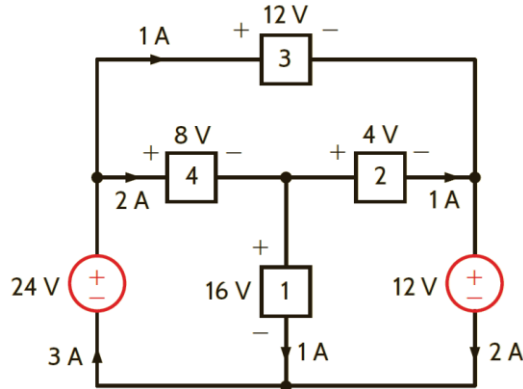


Figure 1

[Based on Irwin and Nelms, 2015, E1.6]

- 3) [Alexander and Sadiku, 2009, Q1.18b] Calculate the power absorbed by each element in Figure 2. (Note that if the power is actually supplied by the element, then your corresponding answer will be negative.)

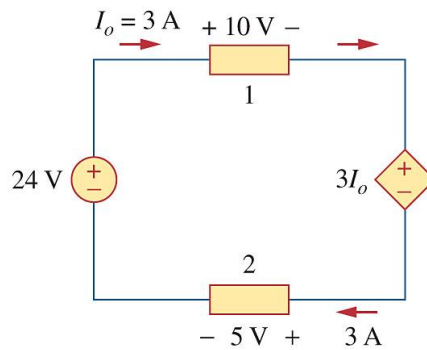
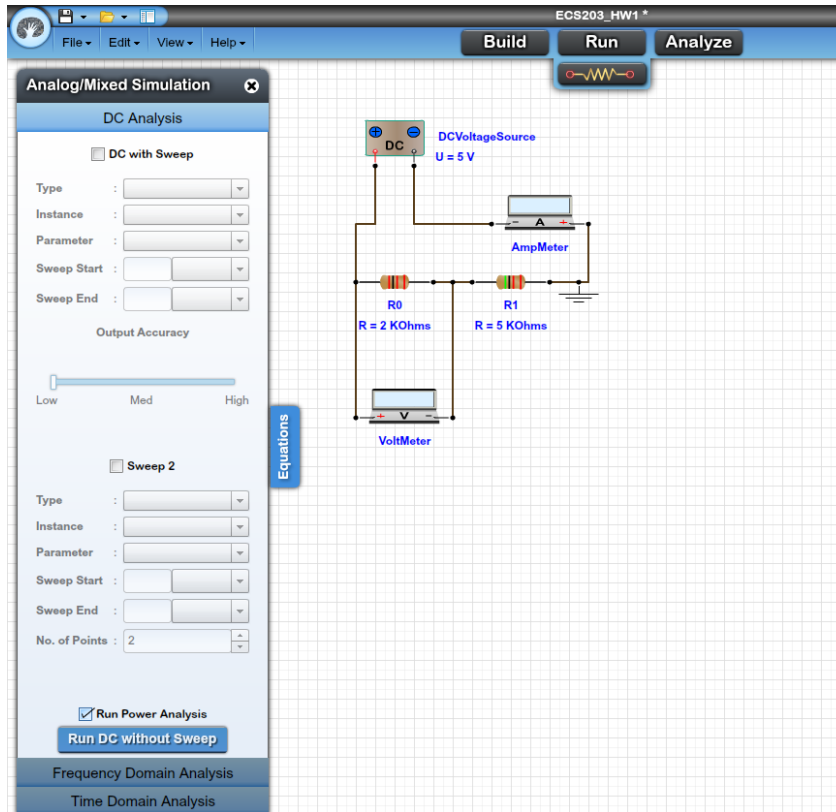


Figure 2

- 4) Indicate the type of the dependent source in Figure 2.

- 5) Access the following circuit at <http://www.docircuits.com/circuit-editor/43223/ecs203-hw1>.



You will need to register and log-in before you can run the simulation.

- a) Click the “Run DC without sweep”, record the values that are displayed on the voltmeter and the ammeter.

- b) Change the resistance (right-click the resistor and select “Edit Properties”) of R1 to be the same as the last four digit of your student ID. (For example, if your ID is 572277**0237**, the resistance of R1 should be 237 Ω .) Now, click the “Run DC without sweep”, record the values that are displayed on the voltmeter and the ammeter. (You may have to press the “Run” button on the top first.)