

EEE 117L Laboratory – Network Analysis

Prelab #2: Resistance, Voltage, and Current Measurements

Lab Day and Time: Wednesday 1:30 - 4:10 PM

Group Number: # 3

Group Members: (Last Name, First Name)

Member #1: Algador, Vigomar Kim

Member #2: Chan, Casey

Member #3: Trinh, Bon

Total Score: /25

Work Breakdown Structure: It is important that every group member do their share of the work in these labs. Remember that you will receive no credit for the prelab if you did not contribute. Write in the Table provided below, which group member(s) contributed to the solution of each problem in the prelab. Also remember that only one prelab per group will be turned in to Canvas. If there was any group member that did not contribute, then write their name in the space provided below.

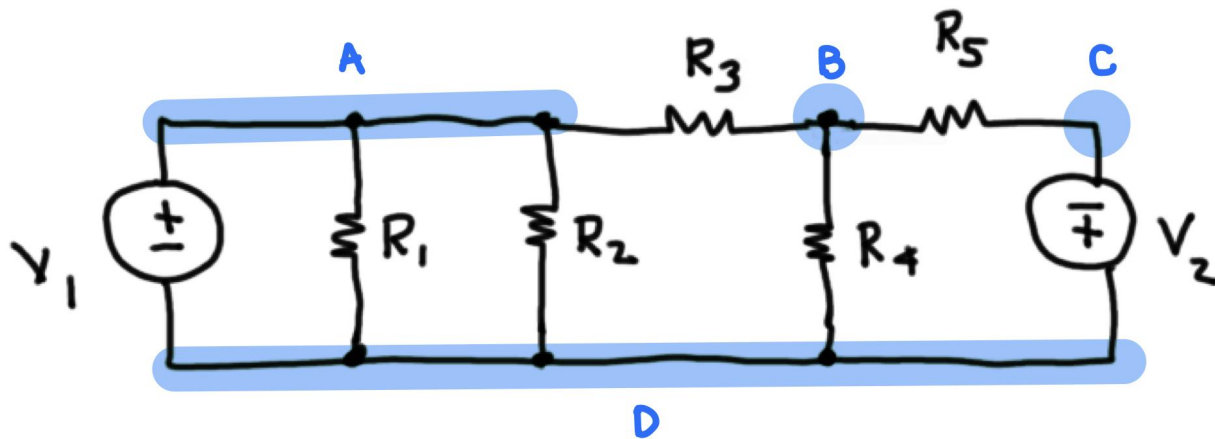
Problem Number	Group member(s) that worked on the problem.
1	Trinh, Bon Chan, Casey Algador, Vigomar Kim
2	Trinh, Bon Chan, Casey Algador, Vigomar Kim
3	Trinh, Bon Chan, Casey Algador, Vigomar Kim
4	Trinh, Bon Chan, Casey Algador, Vigomar Kim
5	Trinh, Bon Chan, Casey Algador, Vigomar Kim
6	Trinh, Bon Chan, Casey Algador, Vigomar Kim

Absent member(s): _____

General Instructions: Theoretical analyses and making predictions regarding the behavior of circuits is one of the most crucial, yet underrated and often ignored, jobs among young engineers. This includes the ability to carry out hand calculations in the abstract. Keep in mind that some of the calculations done here will be directly applicable to the worksheets that will be provided and the circuits you will be assembling and testing for the lab. You may use any technique of circuit analysis in order to obtain the solutions, but you must clearly state which technique of analysis you are using. You must show all work to receive credit. No credit will be given for answers with no justification. Your work should be neat and organized. If I can't follow your work or read your writing, then you will not get full credit. You may attach extra sheets if you need more space to show all your work. Remember that the ability to clearly explain what you are doing to other engineers is one of the most important skills you need to develop.

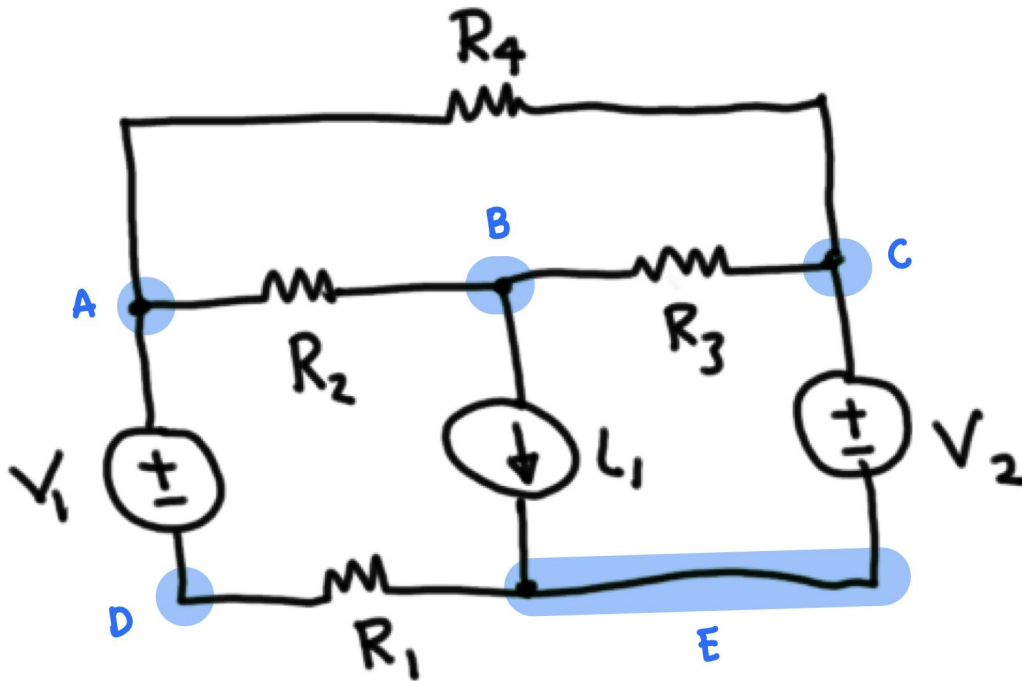
Total Grade: /25

Problem #1: Circle and clearly label all of the nodes in the circuit diagram below. /3



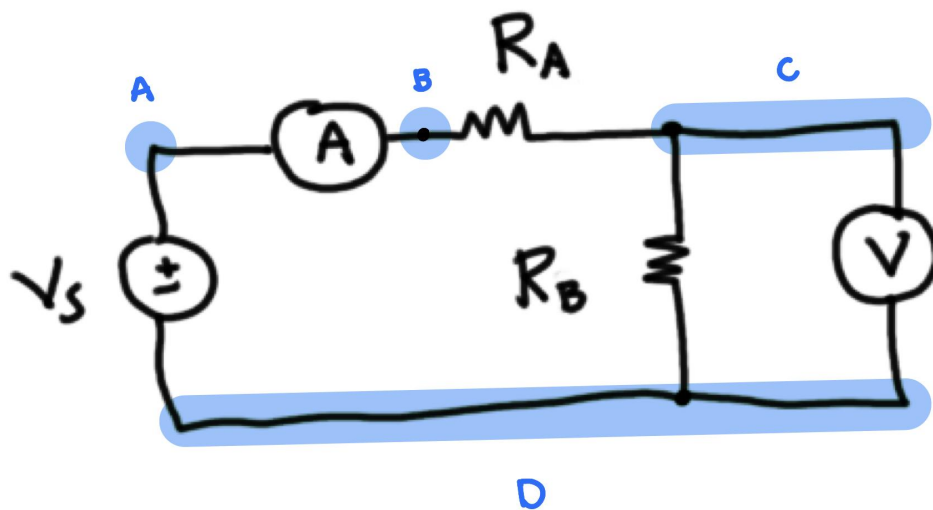
Problem #2: Circle and clearly label all of the nodes in the circuit diagram below.

/3

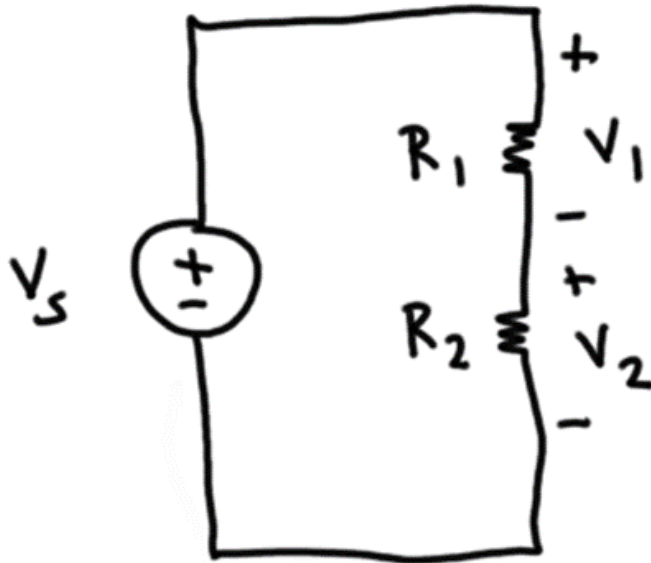


Problem #3: Circle and clearly label all of the nodes in the circuit diagram below.

/3



Problem #4: Solve for V_1 and V_2 in terms of R_1 , R_2 , and V_s only. These should be a single equation, and not systems of equations. Simplify the equations as much as possible. Hint: These equations should be elegant and simple. Show all your work and/or include references. /6



Solution: $-V_s + V_1 + V_2 = 0$

$$V_s = i_s R_1 + i_s R_2$$

$$V_s = i_s (R_1 + R_2)$$

$$i_s = \frac{V_s}{R_1 + R_2}$$

$$V_1 = i_s R_1$$

$$V_2 = i_s R_2$$

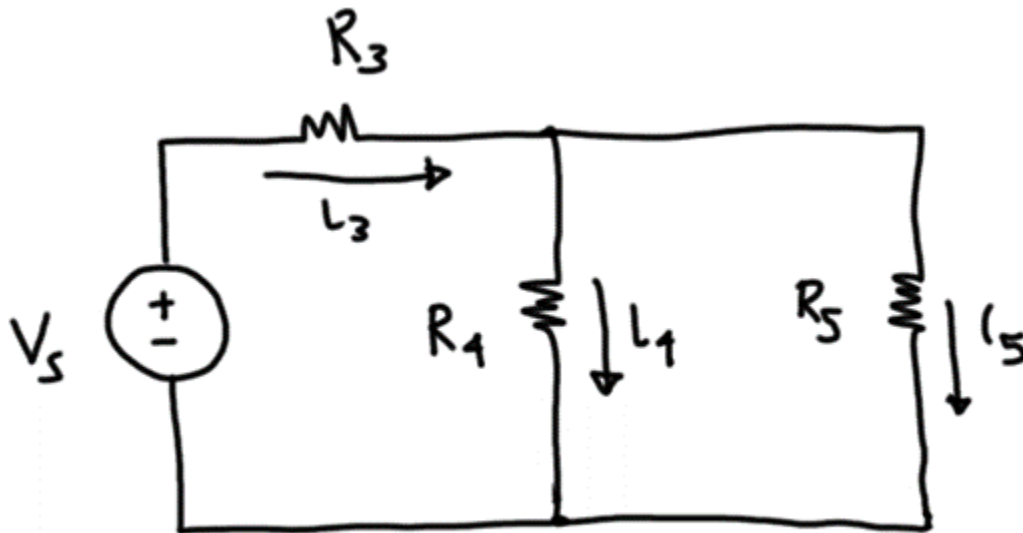
$$V_1 = \frac{V_s}{R_1 + R_2} * R_1$$

$$V_2 = \frac{V_s}{R_1 + R_2} * R_2$$

<p>Answers: $V_1 = \frac{V_s(R_1)}{(R_1 + R_2)}$ $V_2 = \frac{V_s(R_2)}{(R_1 + R_2)}$</p>
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Problem #5: Solve for i_3 , i_4 and i_5 in terms of R_3 , R_4 , R_5 , and R_s only. These should be a single equation, and not systems of equations. Simplify the equations as much as possible. Hint: These will not be small and elegant equations. You will, most likely, need more space to show all your work.

/9



Answers:

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Problem #6: Tell me your favorite engineering joke. If you make me laugh, I will share your joke with the class. (Keep it clean, please). /1

- What's a polar bear?
 - A Cartesian bear after a change of coordinates.
- What did the cop say as he was beating the electrical insulator?
 - "Stop resisting"