

Name \_\_\_\_\_

EE 2240

**Final Exam**

Thursday, May 3, 2018

LIBR B13 and TAB 115, 7:30AM – 9:30AM

***Please read these comments and instructions before starting the exam:***

There are 6 problems on this exam. Each problem is worth a maximum of 25 points. There will be very little partial credit, so please take your time and check your work.

This is an **open-book** exam. You may use a calculator and **any additional paper-based resources you wish**. No other resources may be used – this means no cell phones, tablets, laptops or any other kind of device capable of electronic communication.

***Books, other reference materials and calculators may not be shared.***

Clearly define any variables you define for use in your solutions. I will not try to guess where they are; it's your responsibility to tell me. Show them on the circuit diagram, and present your solutions in a neat and orderly manner. If a solution is difficult to follow, it's not worth as many points as one that is easy to follow.

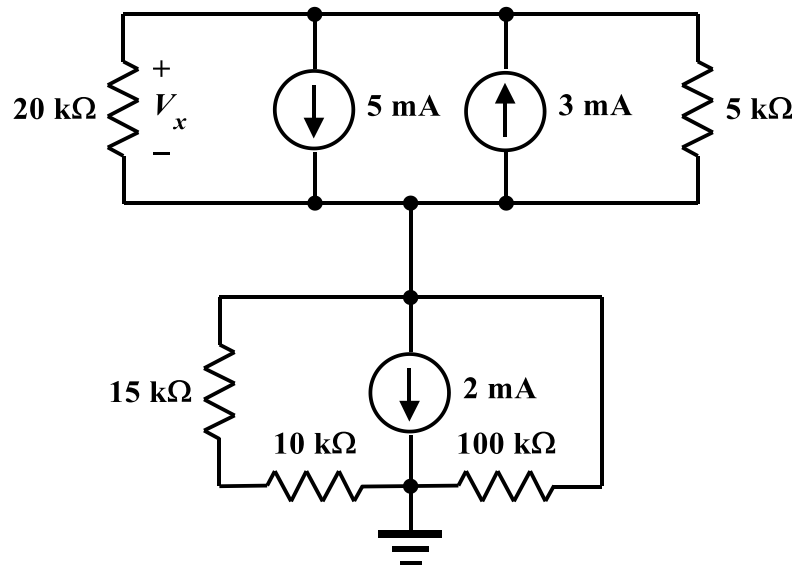
Please do not ask for an explanation or interpretation of any of the symbols, words, or concepts used in this exam. All have been adequately described in class, and I cannot disadvantage other students by providing additional explanation(s) just for you.

You may not leave the room for any reason once the exam has started. There are no restroom breaks allowed. If you feel a need to go, please turn in your exam and do not return. Your exam will not be returned to you.

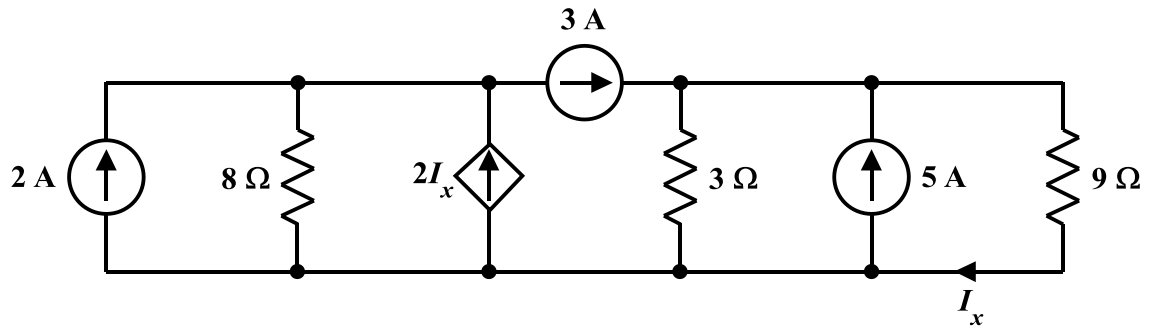
***You may choose to skip one of the 6 problems. Just mark a large "X" across the page of that problem, and your grade will be based on the remaining 5. If you do not mark one, all 6 will be included in your grade.***

You have 2 hours to finish the exam. Please note that your solutions must be submitted no later than 9:30AM.

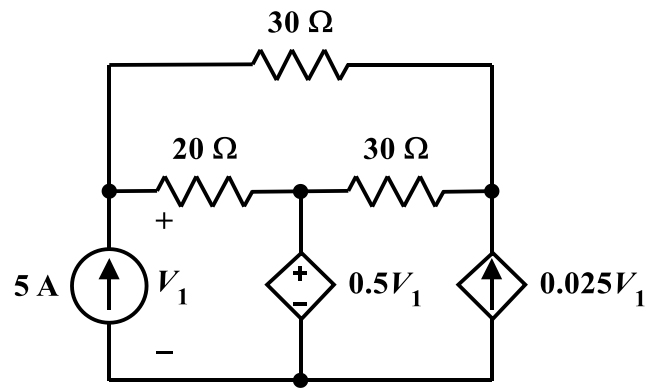
1. [Kirchhoff's Laws, Ohm's Law] Find the numerical value of the voltage  $V_x$ .



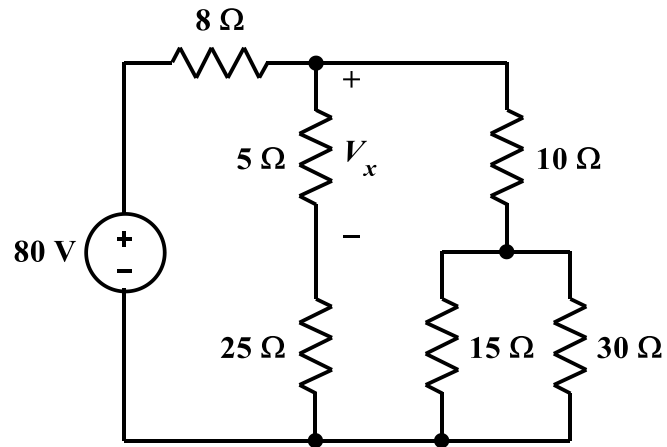
2. [Source Transformation, Superposition] Determine the numerical value of  $I_x$ .



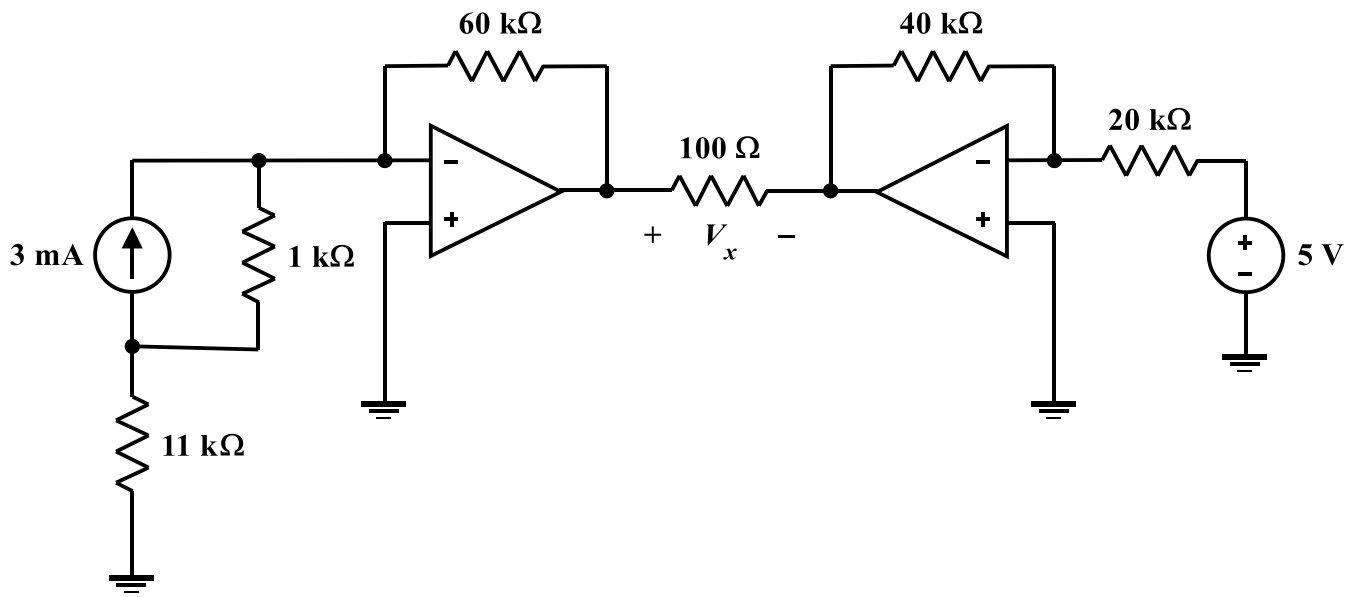
3. [Mesh Analysis] Determine whether the dependent voltage source *delivers* or *absorbs* power, and how much.



4. [Equivalent Resistance, Voltage Division] Determine the numerical value of  $V_x$ .



5. [Source Transformation, Operational Amplifiers] Determine the numerical value of  $V_x$ .



6. [RC Transient Analysis] Determine  $v_C(t)$  for  $t \geq 0$ .

