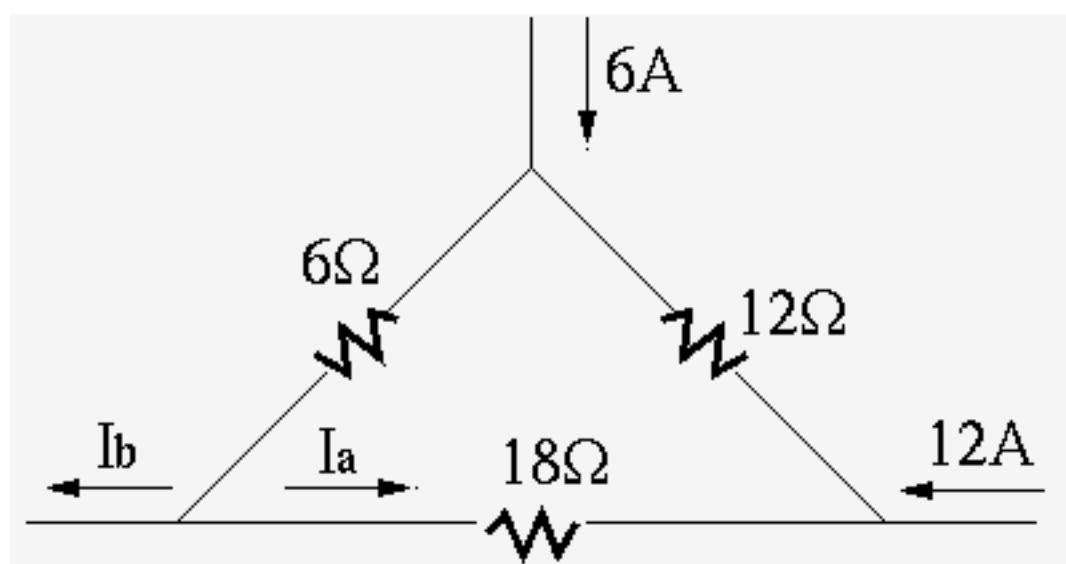# E84 Midterm Exam 1

Instructions

- Take home, open notes, feel free to use a calculator, but not any software package such as Multisim.
- Mark your start and end times. Don't spend more than 3 hours. Due on Monday in class.
- Compare your print-out of the exam with the online version to make sure your hard copy is complete.
- Mark your name and question number clearly on top of each page. Indicate the total number of pages submitted.
- When solving a problem, list all the steps. In each step, indicate concisely what you are doing in English, then show the calculation and the result of for the step. Box the final answer. A final answer, even if correct, without evidence of the steps leading to it will receive ZERO credit.
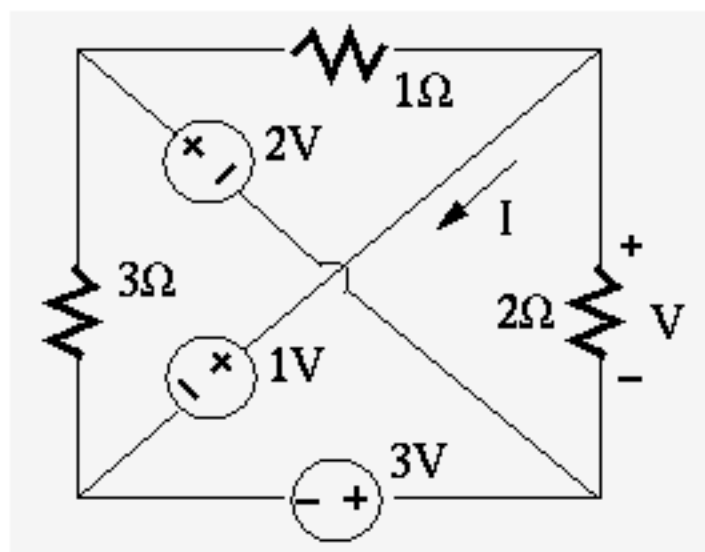
1. **Problem 1. (30 pts)**

    Find the two currents labeled as I_a and I_b in the figure.

2. **Problem 2. (30 points)**

    Find the voltage V across the $2\,\Omega$ resistor (with assumed polarity shown), and the current I through the $1\,V$ voltage source (with assumed direction shown).

3. **Problem 3. (40 pts)**

    The following two parts of the problem are independent, each worth 20 pts.

    - Find the resistance R so that the voltage across the resistor is 1V.
    - Find the resistance R so that the current through the resistor is 0.2A.