Important Remarks

- Homework is due on August 26th, 2014 at the beginning of class
- Start early and get help if you need it
- Start a new page per problem
- Show all the work
- Specify all the units
- Circle your answers
- Staple pages

Homework Problems:

1. Given the circuit shown in Figure 1 determine the unknown voltage drop V_1

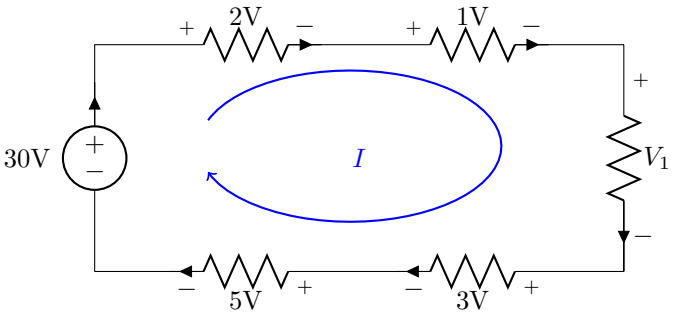

Figure 1: Schematic for Problem 1

2. Given the circuit shown in Figure 2, if $I = 5\text{A}$,
   (a) determine the voltage drop across, R_1, R_2, R_3 and R_4. Label the voltages on the schematic.
   (b) Compute the power absorbed by each resistor.
   (c) Compute the power of the source.
   (d) Does the total power absorbed by all resistors equal the power of the source.?

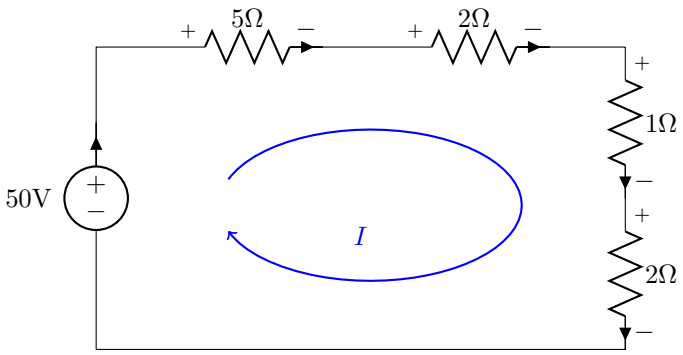

Figure 2: Schematic for Problem 2

3. Given the circuit shown in Figure 3. The circuit element **u** is a mystery component that is consuming 1.5W.

   (a) How many current loops are in the circuit?

   (b) Draw the current loops in your schematics and label them.

   (c) Using Ohm's law, Kirchhoff's voltage law and/or Kirchhoff's current law compute the following (*note: some technique may be easier than another*)

      i. the voltage across R_1,
      ii. the current through R_2,
      iii. the voltage across R_3,
      iv. the current through the mysterious component **u**, and
      v. the resistance of R_4.

   (d) Compute the power of each component, indicate whether they consume or provide power, and show that the sum is equal to zero.

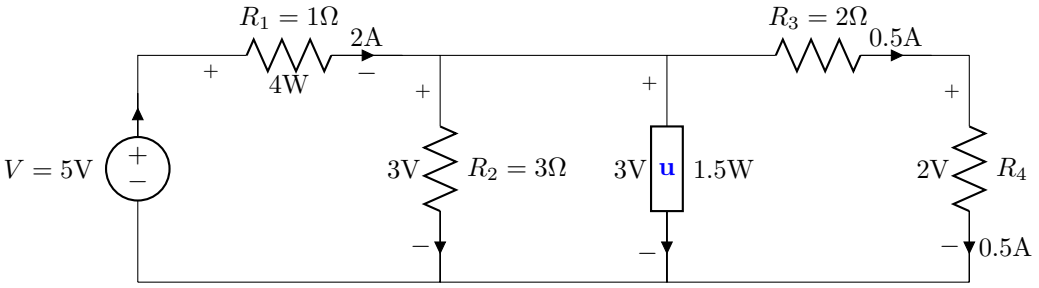

Figure 3: Schematic for Problem 3