EHB211E Basics of Electrical Circuits
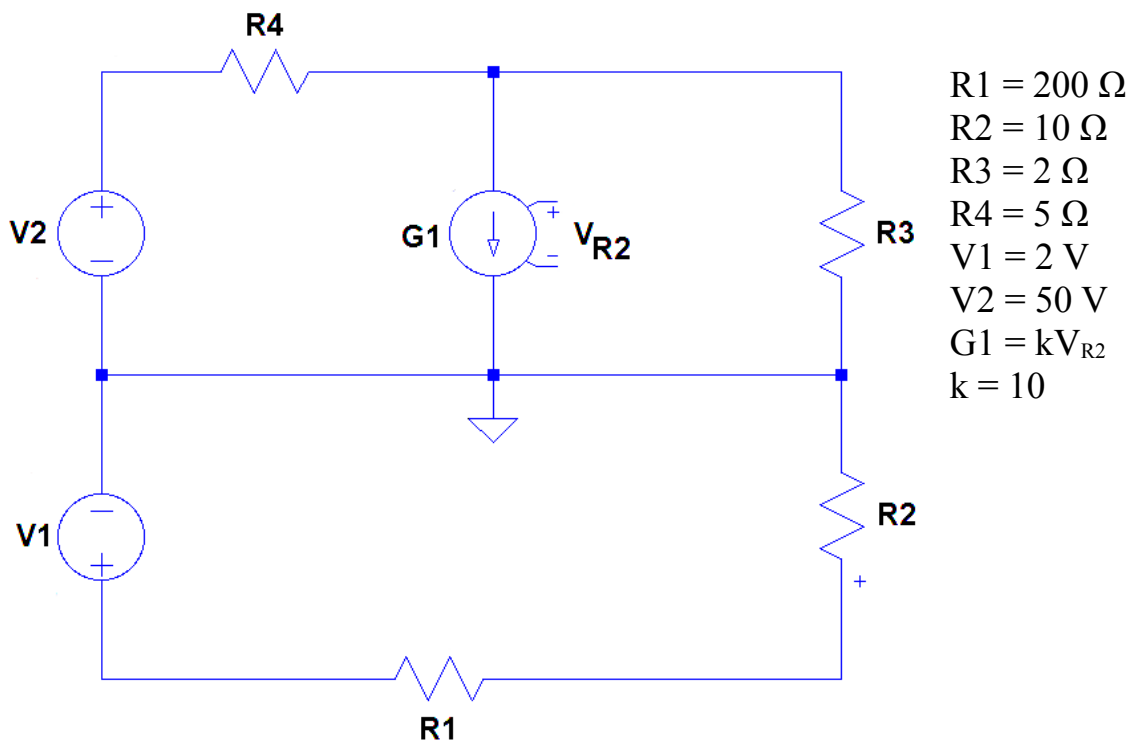Müştak E. Yalçın (CRN: 12622)
Homework #1

Step 1: Write the equations for the circuit given below using mesh-current method or node-voltage method. In the circuit, G1 is a voltage controlled current source, V1 and V2 are DC voltage sources, R1 to R4 are linear resistors. Do not use the component values yet.

Step 2: Calculate all the node voltages and the branch currents of the circuit below, based on the equations find in Step 1. The component values are given on the right-hand-side of the circuit.

Step 3: Using a Spice Simulator, for example OrCAD Pspice, LTSpice or MacSpice, find the calculated voltages and currents asked in Step 2. In order to do this, you can either draw the circuit schematic or write the Spice netlist code.

$R1 = 200 \ \Omega$
$R2 = 10 \ \Omega$
$R3 = 2 \ \Omega$
$R4 = 5 \ \Omega$
$V1 = 2 \ V$
$V2 = 50 \ V$
$G1 = kV_{R2}$
$k = 10$

A report will be prepared for the Step 3. The screenshots of the circuit schematic or the netlist written in Step 3 and the operating point values will be embedded to this report. And, the hand written solutions of Step 1 and 2 will be append to this report's print-out.

The deadline for the homework is November 26th, 2012.

Good luck.