

Frank Martino - Proof of Skills Day 1

Q1 Circuit Simulation

Prove your skill set using LTSpice (preferred Circuits simulation program) or equivalent simulation program (i.e. PSpice or MultiSim..)

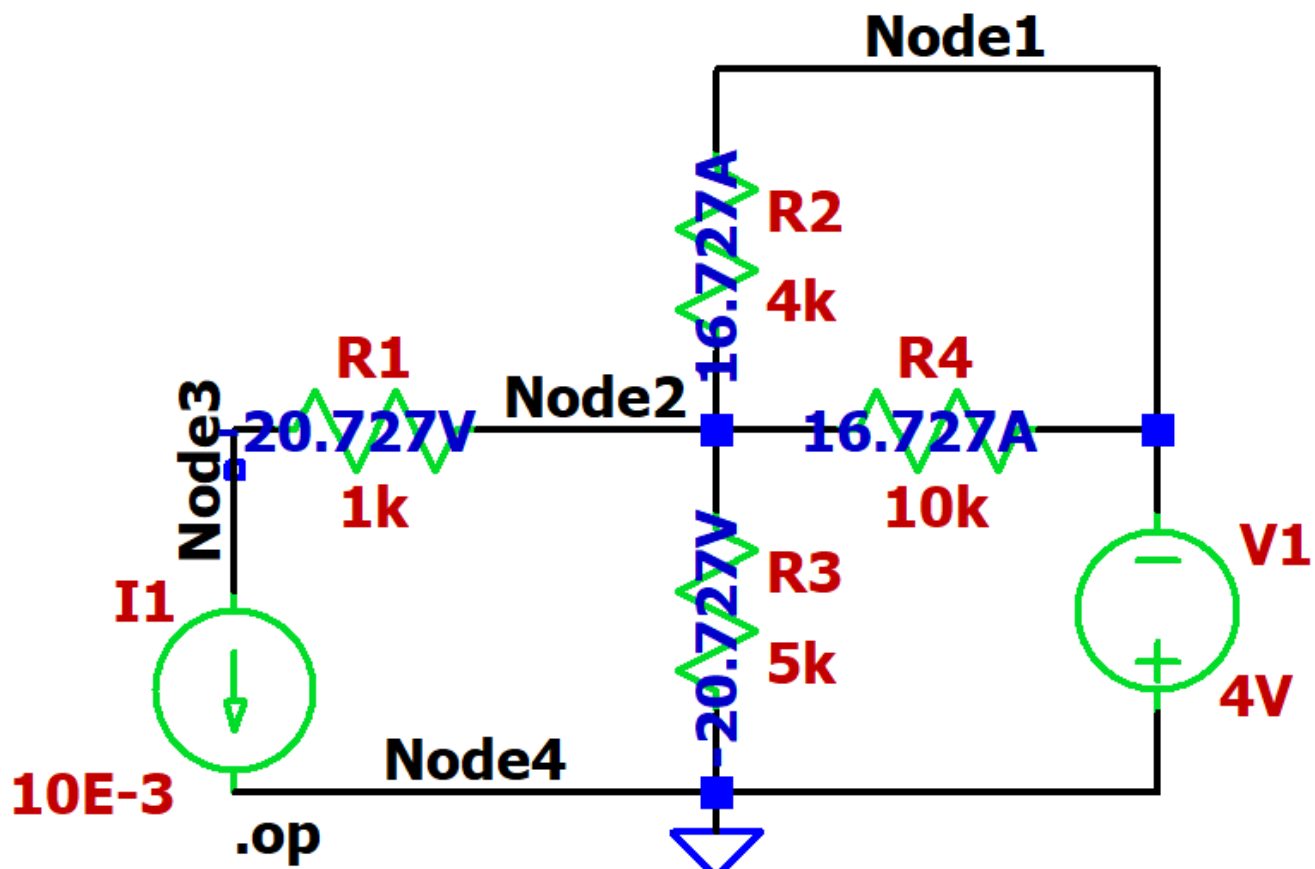
Each of the **Circuit Simulation** Objectives above should reflect the following goals:

- ✓ 1. I can **change my schematic and plot background to white** and cut and paste on an external document
- ✓ 2. I can **change the line thickness and color** of my schematic and simulation output
- ✓ 3. I **can label the simulation output clearly with the circuit schematic component names**
- ✓ 4. I can intentionally show the most relevant part of a simulation by **changing the simulation output window**

Q1.2 Labeling and Identifying Nodes

I can label and identify Nodal Voltages in a circuit. (creating a well labeled schematic!!)

Labeling and Identifying Nodes



Above is a circuit simulation that contains many components such as resistors, batteries, and current source. Each node is identified with black text using the naming convention Node#. A node can be identified at a point in between two or more circuit components.

The remaining components of the circuit are also labeled with consistent naming conventions and color coded for readability. Labels and values on components use a red label with their component abbreviation followed by a number. Resistors have been labeled in red, named R# with a resistance value below, voltages(batteries) are labeled with the voltage source name, V#, and the voltage it supplies to the circuit. Lastly current sources also have a label, I# along with the current the source provides.

Each component in the circuit is in green to make it much more clear compared to the black wiring. I also found it is better to round component voltages, shown in blue above the green components, to avoid excessive decimal places. For example, rounding to three decimals could be done using the formula $\text{round}(v(\text{component name}) * 1000) / 1000$.