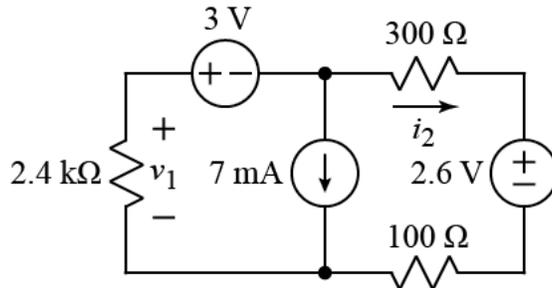




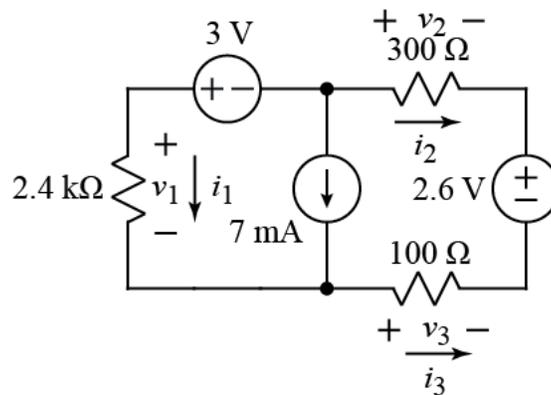
Ex:



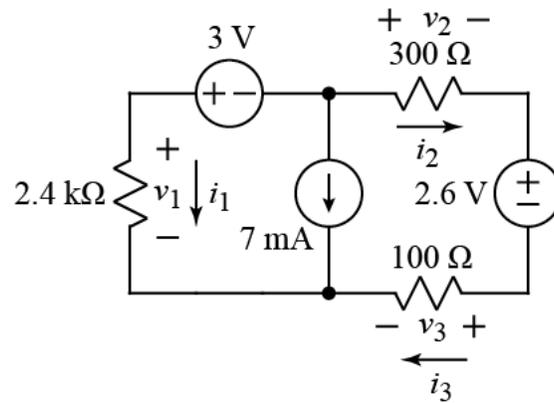
Using the passive sign convention, complete the labeling of all currents and voltages for the resistors in the above circuit.

**SOL'N:** For resistors that already have one label for voltage or current, we must follow the passive sign convention with the other label. That is, the arrow indicating the direction of the current measurement must point to the minus sign of the voltage measurement.

For the remaining resistor, we may choose one of two directions for the voltage measurement. Once the voltage measurement direction is chosen, the arrow for the current measurement must point to the minus sign of the voltage measurement. That means that there are two correct answers to this problem. The diagrams below shows two ways we could label the 100 Ω resistor.



and



Note that either answer is fine for solving the circuit later on. If one person labels it one way and a second person labels it the other way, then the two people will get values that are the negatives of each other. But physically they will be the same answer. That is, measuring voltage or current backwards with a meter changes the sign of the value measured, but it doesn't change what is physically happening in the circuit.