

Questions:

What do I need to know about this class?

What is voltage? What is a voltage difference/voltage drop?

What is current?

What is polarity?

How do we define power?

What is a circuit model?

What is a ground?

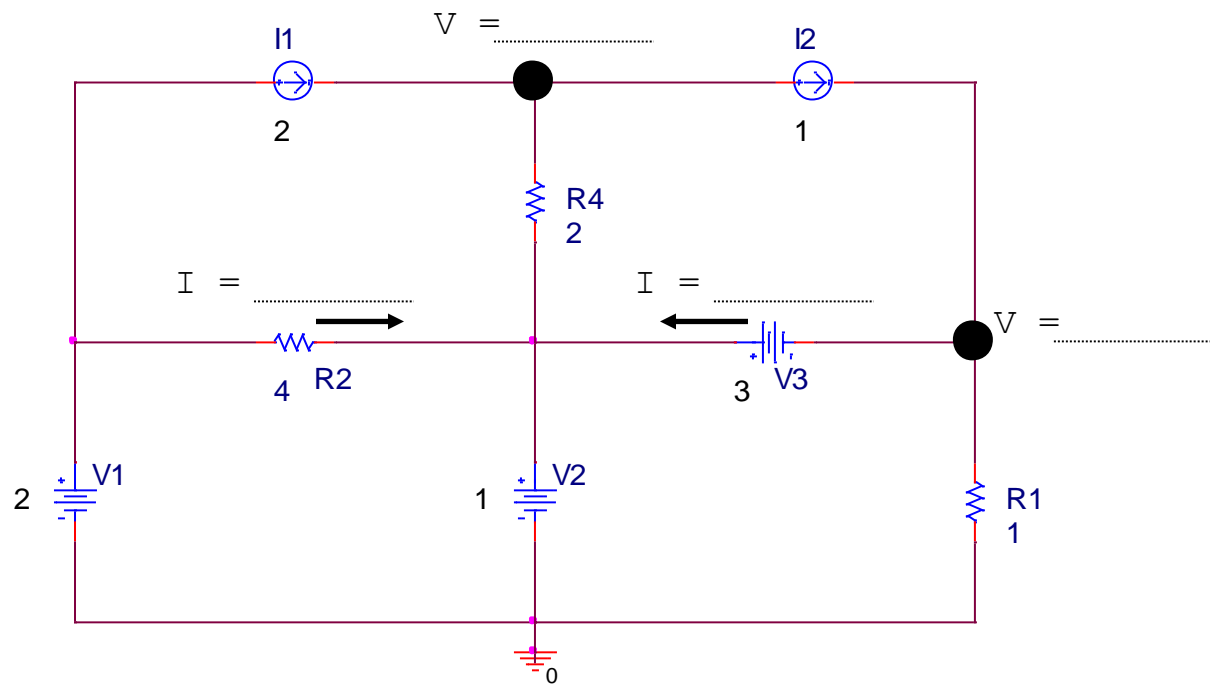
What is the VI characteristic of an open circuit? a short circuit? an ideal voltage source?
an ideal current source? a resistor? a diode?

What is Ohm's Law?

What is a node in a circuit?

What is a closed loop in a circuit?

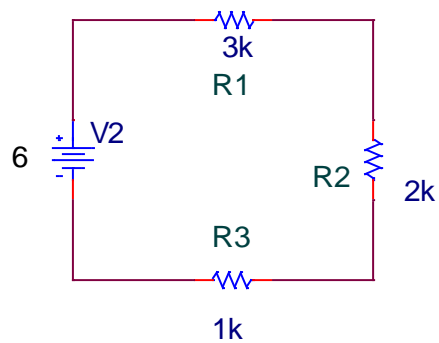
How do we apply Kirchhoff's Voltage Law (KVL)? Kirchhoff's Current Law (KCL)?



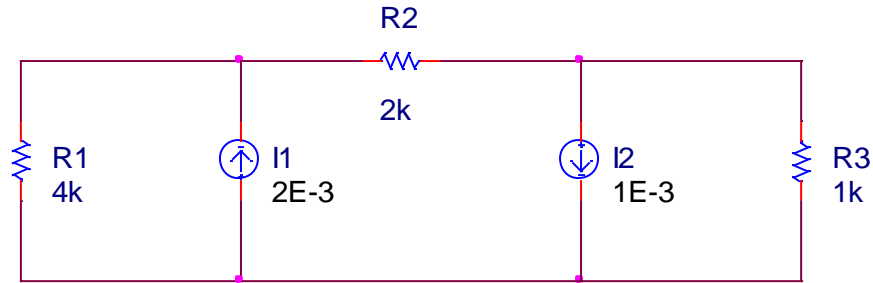
- a) Using Ohm's Law, voltage differences and KCL, determine the currents and voltages at the indicated positions.



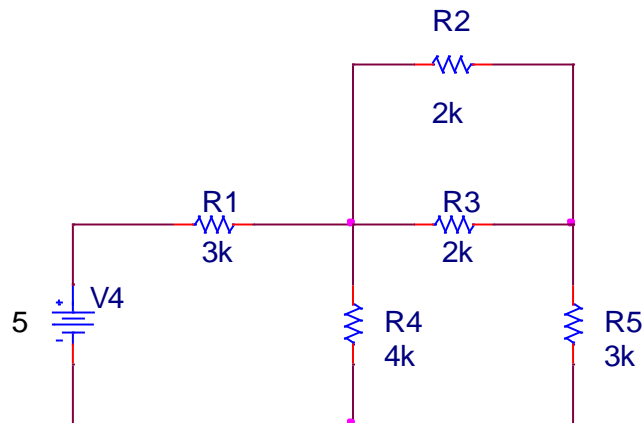
- b) Assign polarities to each resistor and apply KCL and/or KVL to obtain three independent expressions for the voltage across each resistor. (Answers: $V_{R1}=V_{R2}=V_{R3}=6\text{ V}$)



- c) Assign polarities to each resistor and apply KCL and/or KVL to obtain three independent expressions for the voltage across each resistor. (Answers: $V_{R1} = 3\text{ V}$, $V_{R2} = 2\text{ V}$, $V_{R3} = -1\text{ V}$)



- a) Assign polarities to each resistor and apply KCL and/or KVL to obtain three independent expressions for the voltage across each resistor. (Answer: $VR1 = 2.857\text{ V}$, $VR2 = 2.571\text{ V}$, $VR3 = 0.2857\text{ V}$)



- b) Assign polarities to each resistor and apply KCL and/or KVL to obtain five independent expressions for the current through each resistor. (Answer: $IR1 = 1\text{mA}$, $IR2 = 0.25\text{mA}$, $IR3 = 0.25\text{mA}$, $IR4 = 0.5\text{mA}$, $IR5 = 0.5\text{mA}$)