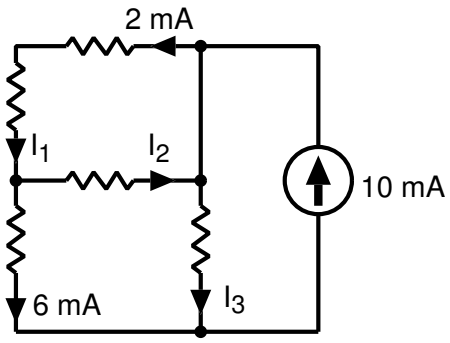
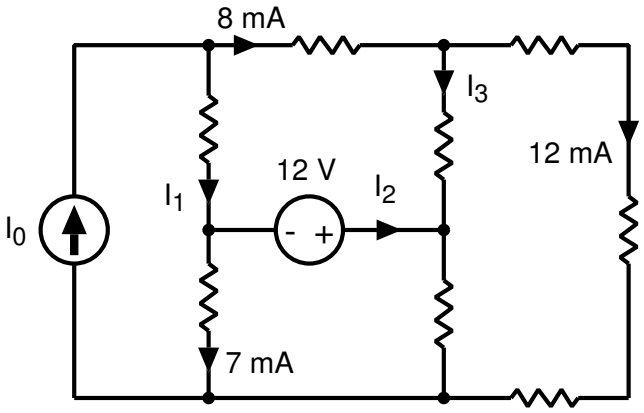
# Homework #2

## Due September 7, 4:30pm in 4016 SC

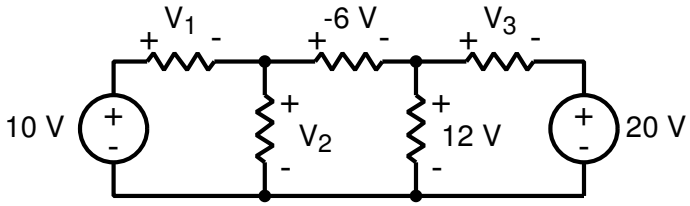
Problem 1) Use Kirchoff's Current Law (KCL) to find the unknown currents $I_1$, $I_2$, and $I_3$ in the circuit shown.



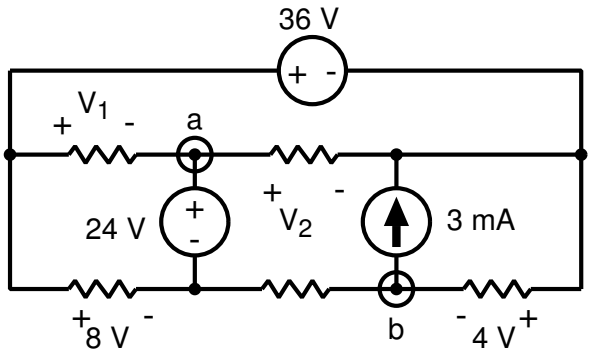

Problem 2) The voltage source in the circuit shown is supplying 60 mW of power ($P = -60\ \mathrm{mW}$). Use KCL to find the labeled currents $I_1$, $I_2$, and $I_3$.



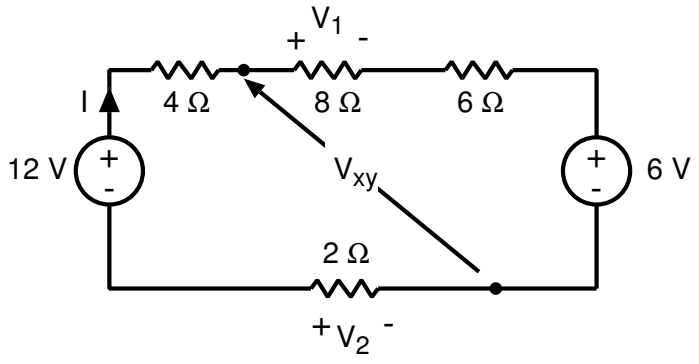

Problem 3) Find the unknown voltages $V_1$, $V_2$, and $V_3$ using Kirchoff's Voltage Law (KVL) for the circuit shown.



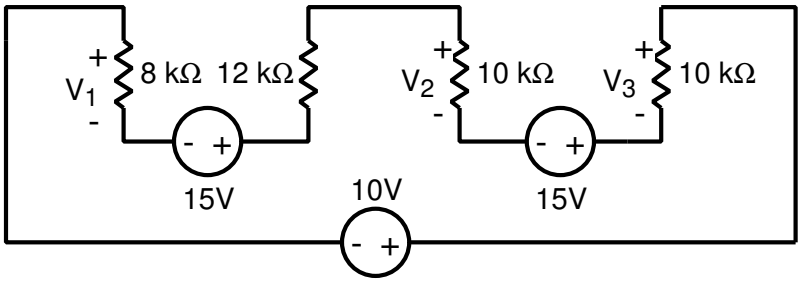

Problem 4) Use KVL to find the three unknown voltages $V_1$, $V_2$, and $V_{ab}$ as labeled in the circuit.



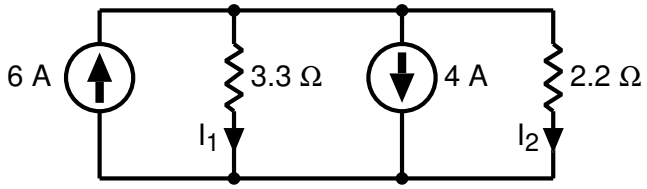
Problem 5) Find the current $I$ and the voltages $V_1$, $V_2$, and $V_{xy}$ for the single loop circuit shown.




Problem 6) Find the labeled voltages $V_1$, $V_2$, and $V_3$ in the circuit shown below.




Problem 7) (A) Find the currents $I_1$ and $I_2$ and the power absorbed in the $2.2\ \Omega$ resistor. (B) To what value can the $2.2\ \Omega$ resistor be changed so that the new resistor absorbs $2.5\ \mathrm{W}$ of power? *Hint: There are two possible values, suggesting that a quadratic equation will be involved.*




Problem 8) Determine the value of $I_0$ for the current source that will result in $V_0 = 9\ \mathrm{V}$.