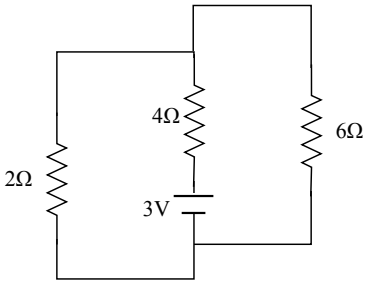
Physics 2140 Homework #9

4 problems

Complete by November 5

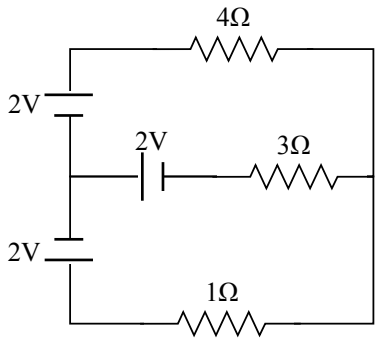
▷ **1.**

Find the current through all three resistors.



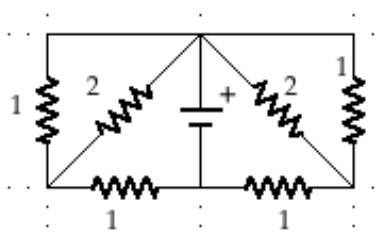
▷ **2.**

Find the current through all three batteries. Note that the current will run backward through at least one battery; assume that this can happen without any difficulty (it will end up recharging the battery).



▷ **3.**

In the figure below, the battery has emf $\mathcal{V} = 5\,\mathrm{V}$ and the resistors are all $1\,\Omega$ or $2\,\Omega$. Find the effective resistance of all the resistors combined, and find the current through the battery.



▷ **4.**

Find the current through the resistor labelled "*I?*", if all batteries are $3\,\mathrm{V}$ and all resistors are $2\,\Omega$. Hint: Simple loops! (Watch the Youtube video linked to on the website if you don't know what that means.)