Name_____

Physics 111 Quiz #3, September 30, 2024

Please show all work, thoughts and/or reasoning to receive partial credit. The quiz is worth 10 points total, and all parts may not be of equal weight.

I affirm that I have carried out my academic endeavors with full academic honesty.

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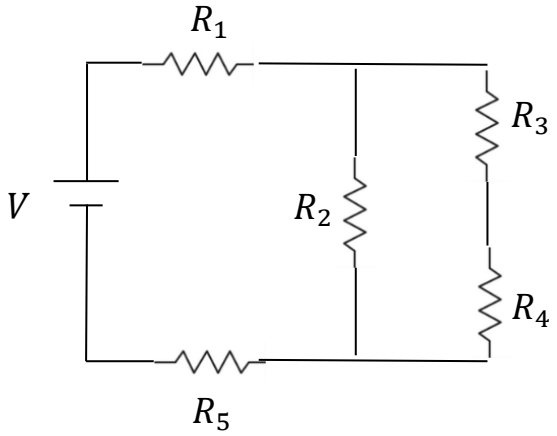
1. A resistor is constructed out of nickel ($\rho = 7 \times 10^{-8}\Omega m$) with a length of $L = 3m$. If the resistance needs to be $R = 100\Omega$, what is the diameter (in μm) of the wire needed?

Suppose that you have the circuit below in which some resistors (each with resistance $R = 100\Omega$) are wired to a $50V$ battery.

2. What is the equivalent resistance of the circuit?



3. What is the total current produced by the battery?

4. What is the power dissipated across resistor R_5?

5. What is the current that flows through resistor R_3?