Name: _____

Date: _____

Section C D F

The Masters School
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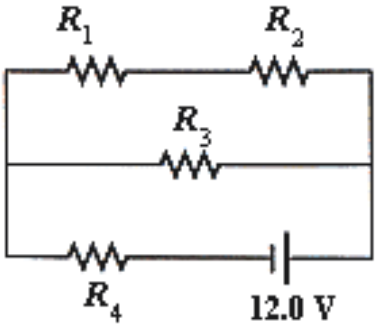
Physics

Circuitry IV

1. Two resistors, *A* and *B*, are connected in series to a 6.0 V battery. A voltmeter connected across resistor *A* measures a potential difference of 2.4 V. When the two resistors are connected in parallel across the 6.0 V battery, the current in *B* is found to be 1.2 A. Find the resistances of *A* and *B*. (Your should find that A ≠ B, but both resistances should be less than 10 Ω)

2. Three resistors are connected in parallel – an 80 Ω resistor, a 16.0 Ω resistor, and a 20 Ω resistor, and then joined in series to a 12.0 Ω resistor from a battery source with a potential difference of 24.0 V.
    a. Draw a schematic diagram for this circuit.
    b. Calculate the equivalent resistance and the net current in the circuit. (Your answers should be between 15 – 22 Ω, and 1 – 2 A, respectively)
    c. Find the current and potential difference in each resistor. (Remember your rules)

3. Four resistors are connected to a battery with a terminal voltage of 12.0 V, as shown in the figure below. Assume that $R_1 = 30.0\ \Omega$, $R_2 = 80.0\ \Omega$, $R_3 = 100.0\ \Omega$ and $R_4 = 15.0\ \Omega$)



a. Re-draw the circuit.

b. Determine the equivalent resistance and the net current in the circuit. (Your answer should be between 50 – 70 Ω, and 0 – 1 A, respectively.)

c. Determine the potential difference in the 30 Ω resistor. (Your answer should be between 2 – 3 V)