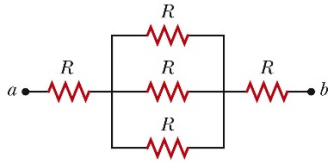
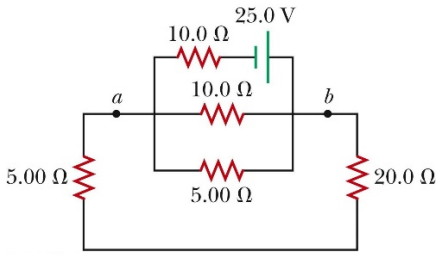
University Physics II

Homework Set 6

1. What is the equivalent resistance of the combination of identical resistors between points *a* and *b* in the figure below?



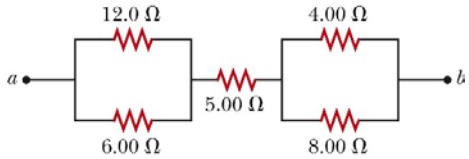
2. Consider the circuit shown below. Find:
   a. The potential difference (V_{ab}) between points *a* and *b*
   b. The current in the 20.0 Ω resistor



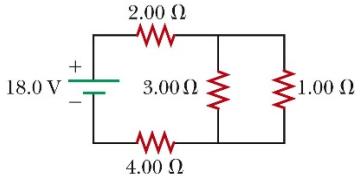
3. **a) You need a 45 Ω resistor, but the stockroom only has 20 Ω and 50 Ω resistors. How can you combine these resistors to achieve the desired resistance?

   b) What combination would you need to do if you required a 35 Ω resistor?

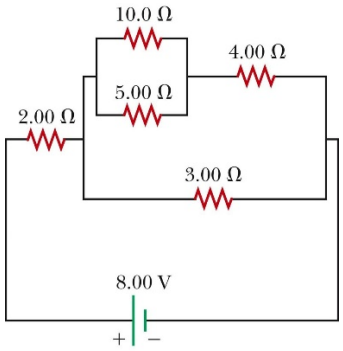
4. Consider the combination of resistors shown in the figure below.
   a. Find the equivalent resistance between points *a* and *b*.
   b. If a voltage of 35.0 V is applied between points *a* and *b*, find the current in each resistor.



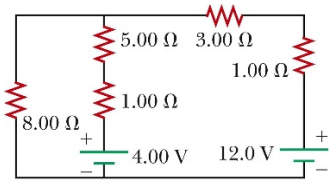
5. Calculate the power delivered to each resistor in the circuit shown below.



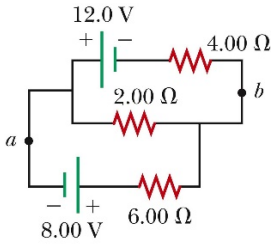
6. Consider the circuit shown below.
    a. Find the voltage across the 3.00 Ω resistor
    b. Find the current in the 3.00 Ω resistor



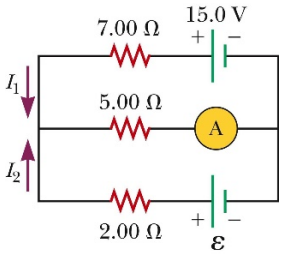
7. Consider the circuit shown below:
    a. Determine the current in each branch of the circuit.
    b. Determine the power supplied by each battery.



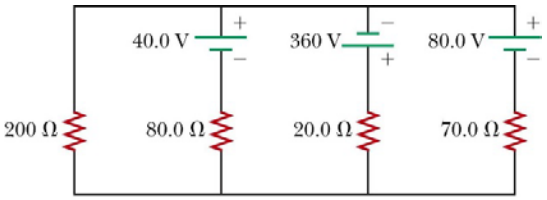
8. For the circuit shown below, calculate:
    a. The current in the 2.00 Ω resistor
    b. The potential difference (V_{ab}) between points *a* and *b*



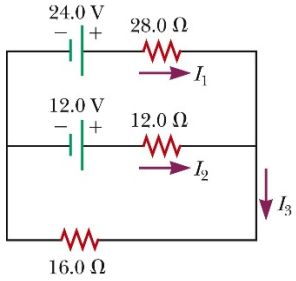
9. The ammeter shown in the circuit below reads 2.00 A. Find:
    a. I_1
    b. I_2
    c. $\mathcal{E}$



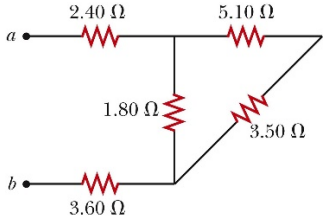
10. In the circuit below, determine:
    a. The current in each resistor
    b. The potential difference across the 200 Ω resistor



11. In the circuit below, find:
    a. The current in each resistor
    b. The power delivered to each resistor



12. Find the equivalent resistance between points *a* and *b* in the following figure:



13. In the circuit below, find:
    a. The equivalent resistance of all the resistors
    b. The potential difference (ΔV) across each resistor
    c. The value of each current indicated
    d. The power delivered to each resistor