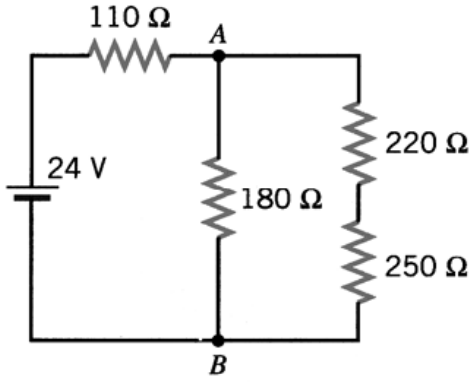
Combination Circuits

Often an electric circuit is wired partially in series and partially in parallel. The key to determining the current, voltage, and power in such a case is to deal with the circuit in parts, with the resistances in each part being in series or parallel with each other.

Example 1

The diagram below shows a circuit composed of a $24\ V$ battery and four resistors, whose resistances are $110\,,\ 180\,,\ 220\,,$ and $250\ \Omega$. Find

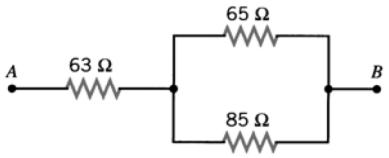


a) the total current supplied by the battery.
b) the voltage between points A and B in the circuit.

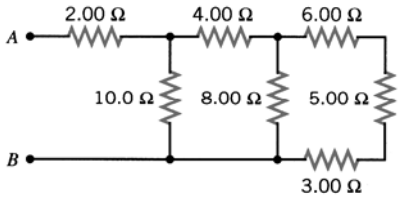
Circuits Worksheet #7

1. In each of the following diagrams, determine the equivalent resistance between points A and B.

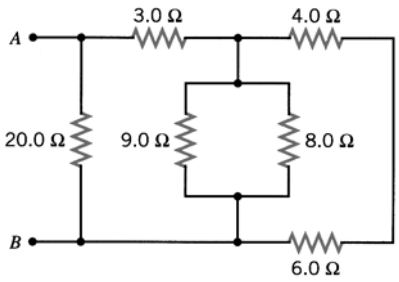
   a) (99.8 Ω)



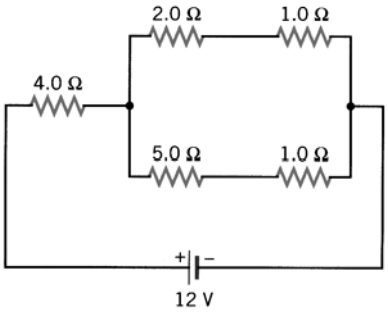
   b) (6.76 Ω)



   c) (4.60 Ω)



2. Determine the power dissipated in the 5.0 Ω resistor in the circuit shown in the drawing. (2.2 *W*)



3. The current in the $8.00\ \Omega$ resistor in the drawing is $0.5\ A$. Find the current in (a) the $20.0\ \Omega$ resistor and in (b) the $9.00\ \Omega$ resistor. ($0.75\ A$, $2.11\ A$)