

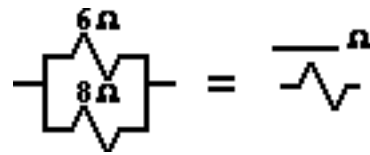
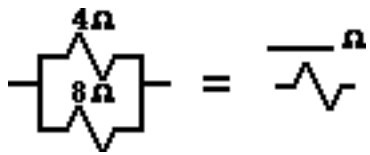
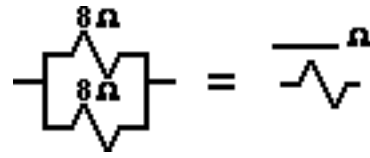
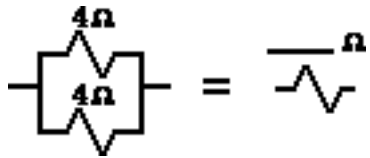
Combination Circuits

Read from Lesson 4 of the Current Electricity chapter at The Physics Classroom:

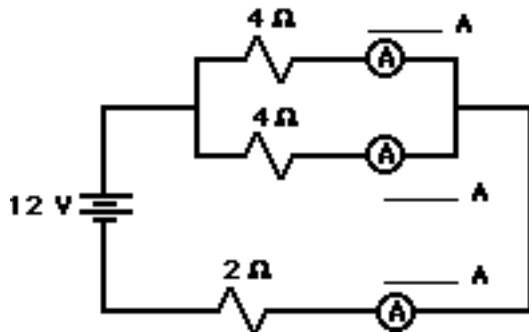
<http://www.physicsclassroom.com/Class/circuits/u914d.html>

MOP Connection: Electric Circuits: sublevel 12

1. **Review:** Determine the equivalent resistance for the following sets of resistors.

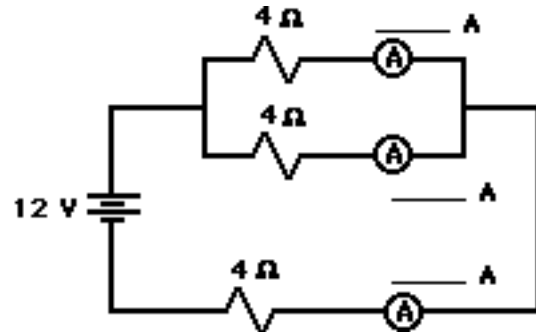


2. The circuits below are known as combination or compound circuits; they are composed of resistors that are arranged both in parallel with each other as well as other resistors arranged in series with each other. In each circuit, the resistors that are arranged in parallel have the same resistance value. For each combination circuit shown below, determine the equivalent resistance for the combination of three resistors, the total current (i.e., at the battery), and the current at each of the three indicated locations.



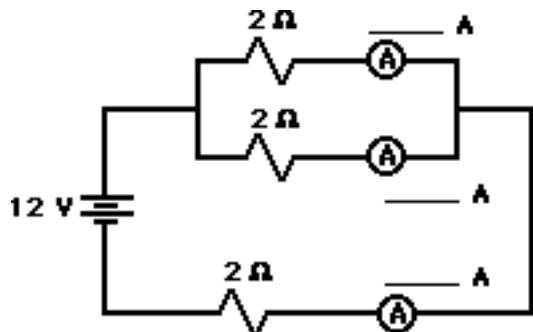
$R_{eq} = \underline{\hspace{2cm}}$

$I_{tot} = \underline{\hspace{2cm}}$



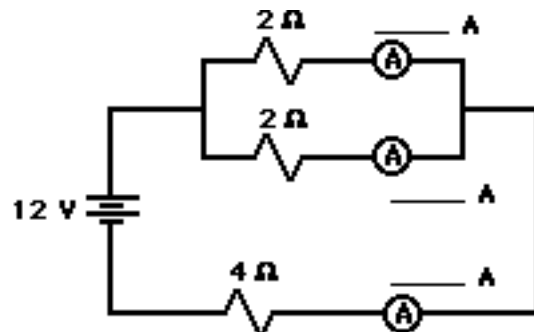
$R_{eq} = \underline{\hspace{2cm}}$

$I_{tot} = \underline{\hspace{2cm}}$



$R_{eq} = \underline{\hspace{2cm}}$

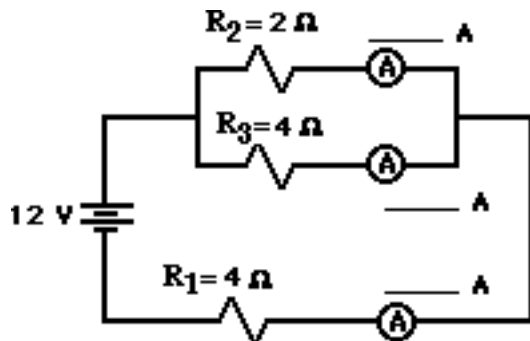
$I_{tot} = \underline{\hspace{2cm}}$



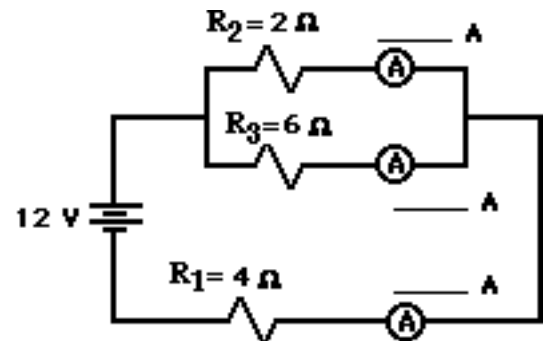
$R_{eq} = \underline{\hspace{2cm}}$

$I_{tot} = \underline{\hspace{2cm}}$

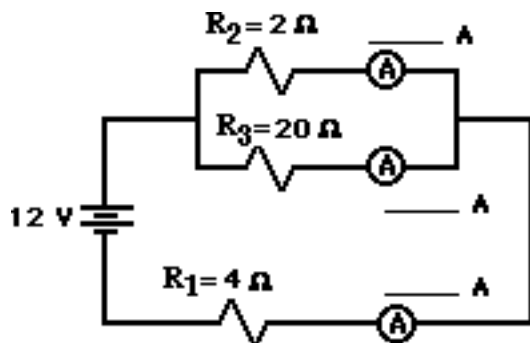
3. The compound circuits shown below are composed of parallel arrangements of resistors with different resistance values. For each combination circuit, determine the equivalent resistance for the combination of three resistors, the total current (i.e., at the battery), the voltage drop for each resistor and the current at each of the three indicate locations.



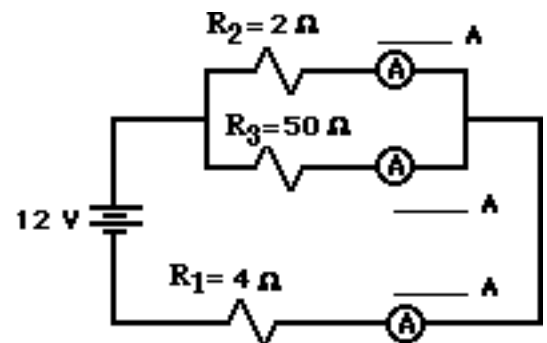
$R_{eq} =$ _____ $I_{tot} =$ _____
 $I_1 =$ _____ $\Delta V_1 =$ _____
 $I_2 =$ _____ $\Delta V_2 =$ _____
 $I_3 =$ _____ $\Delta V_3 =$ _____



$R_{eq} =$ _____ $I_{tot} =$ _____
 $I_1 =$ _____ $\Delta V_1 =$ _____
 $I_2 =$ _____ $\Delta V_2 =$ _____
 $I_3 =$ _____ $\Delta V_3 =$ _____



$R_{eq} =$ _____ $I_{tot} =$ _____
 $I_1 =$ _____ $\Delta V_1 =$ _____
 $I_2 =$ _____ $\Delta V_2 =$ _____
 $I_3 =$ _____ $\Delta V_3 =$ _____



$R_{eq} =$ _____ $I_{tot} =$ _____
 $I_1 =$ _____ $\Delta V_1 =$ _____
 $I_2 =$ _____ $\Delta V_2 =$ _____
 $I_3 =$ _____ $\Delta V_3 =$ _____