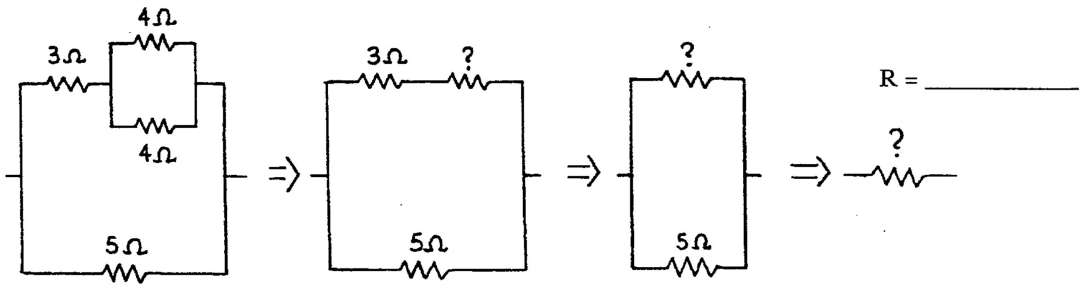
Name _____ Period _____ Date _____

Concept-Development Practice Page 35–3

Chapter 35: Electric Circuits

Compound Circuits

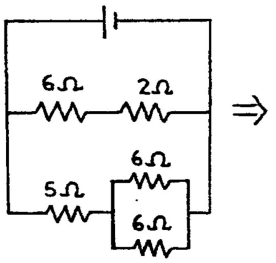
1. The initial circuit, below left, is a compound circuit made of a combination of resistors. It is reduced to a single equivalent resistance by the three steps, the circuits to its right, *a, b, c.* In step *a,* show the equivalent resistance of the parallel 4-Ω resistors. In step *b* combine this in series with the 3-Ω resistor. In step *c,* combine the last parallel pair to obtain the equivalent resistance of the circuit. (Note the similarity of this circuit and Figure 35-10 in your textbook.)



R = _____

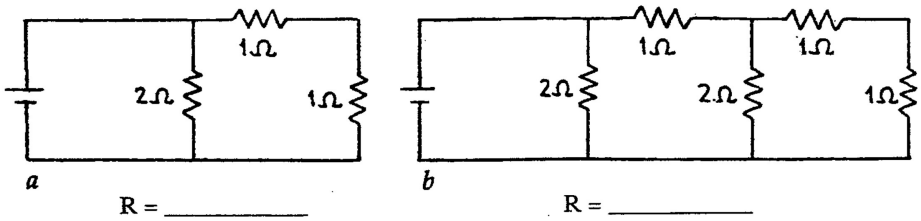
Initial Circuit *a.* *b.* *c.*

2. The circuit below is similar to Figure 35-11 in your textbook. In three successive steps, as in Question 1, replace each pair of resistors by a single resistor of equivalent resistance.

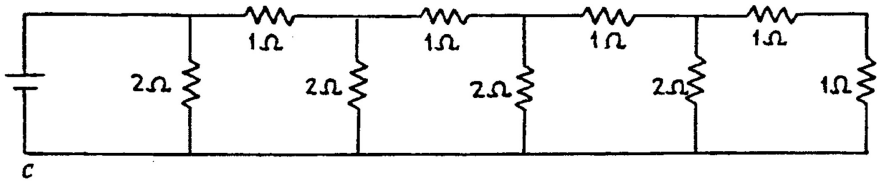


R = _____

3. Find the equivalent resistance of these three circuits.

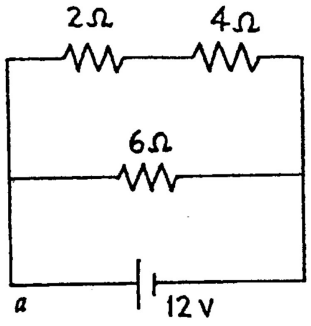


R = _____ R = _____

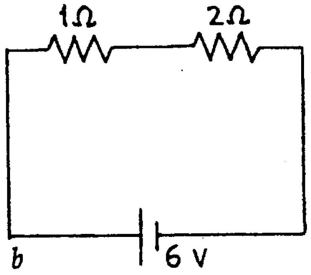


R = _____

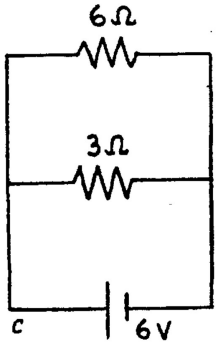
4. The table beside circuit *a* below shows the current through each resistor, the voltage across each resistor, and the power dissipated as heat in each resistor. Find the similar correct values for circuits *b*, *c*, and *d*, and put your answers in the tables shown.



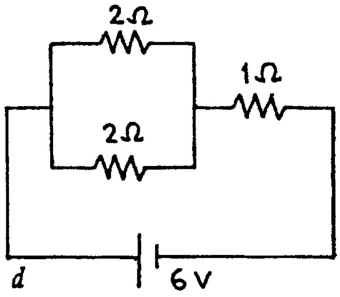
RESISTANCE	CURRENT ×	VOLTAGE =	POWER
2Ω	2 A	4 V	8 W
4Ω	2 A	8 V	16 W
6Ω	2 A	12 V	24 W



RESISTANCE	CURRENT ×	VOLTAGE =	POWER
1Ω			
2Ω			



RESISTANCE	CURRENT ×	VOLTAGE =	POWER
6Ω			
3Ω			



RESISTANCE	CURRENT ×	VOLTAGE =	POWER
2Ω			
2Ω			
1Ω			