**Concept-Development Practice Page** | **35-2**

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.)

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

R = _____
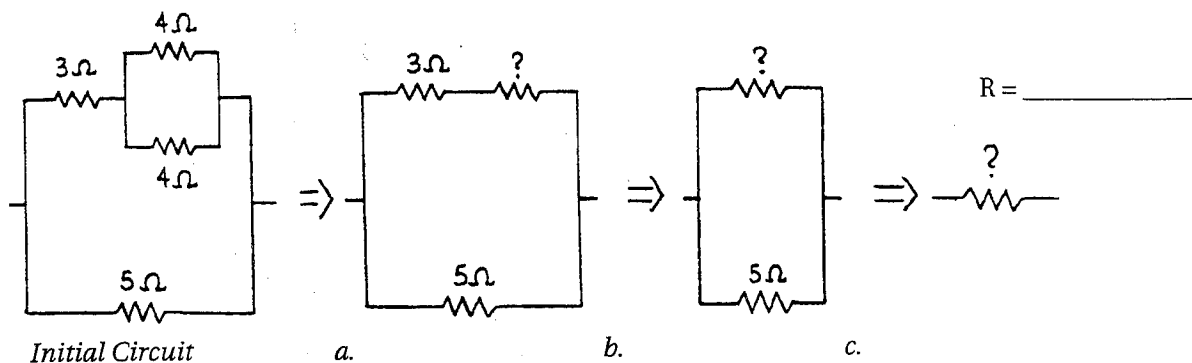
2. The circuit below is similar to Figure 35.11 in your textbook. In three successive steps, as in Question 1, replace each pair of resistors by a single resistor of equivalent resistance.
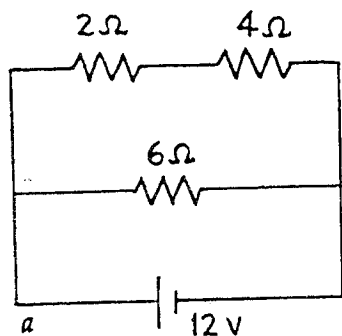

R = _____

3. Find the equivalent resistance of these three circuits.

a   *b*

R = _____   R = _____

c

R = _____

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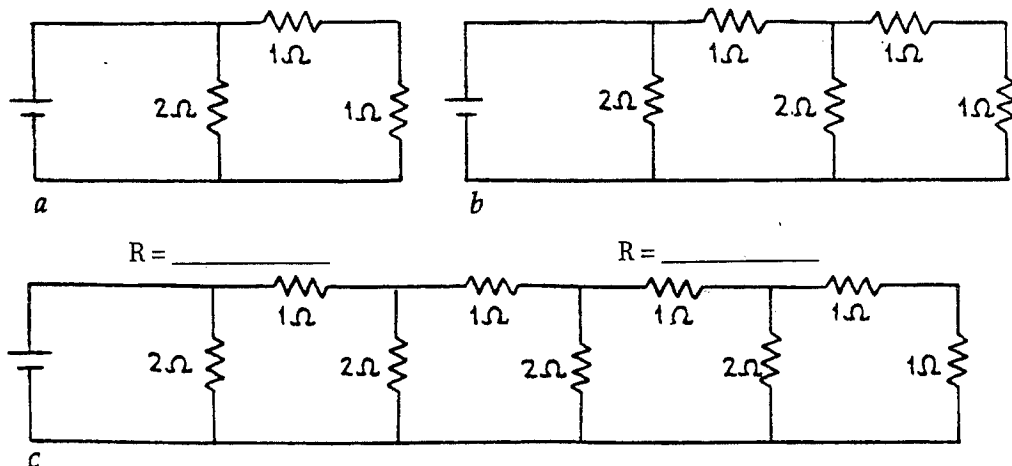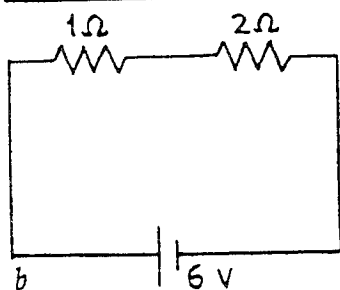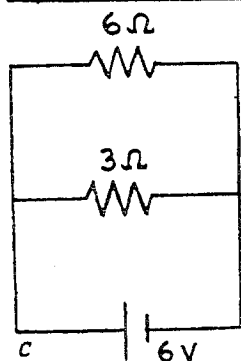
4. The table beside circuit *a* below shows the current through each resistor, the voltage across each resistor, and the power dissipated as heat in each resistor. Find the similar correct values for circuits *b, c,* and *d,* and put your answers in the tables shown.
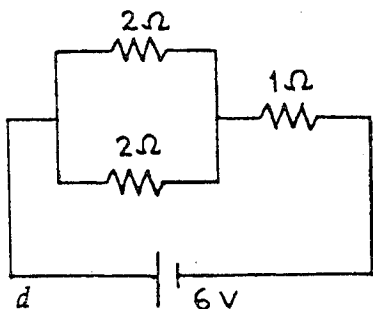

RESISTANCE	CURRENT ×	VOLTAGE =	POWER
2 Ω	2 A	4 V	8 W
4 Ω	2 A	8 V	16 W
6 Ω	2 A	12 V	24 W

RESISTANCE	CURRENT ×	VOLTAGE =	POWER
1 Ω			
2 Ω			

RESISTANCE	CURRENT ×	VOLTAGE =	POWER
6 Ω			
3 Ω			

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