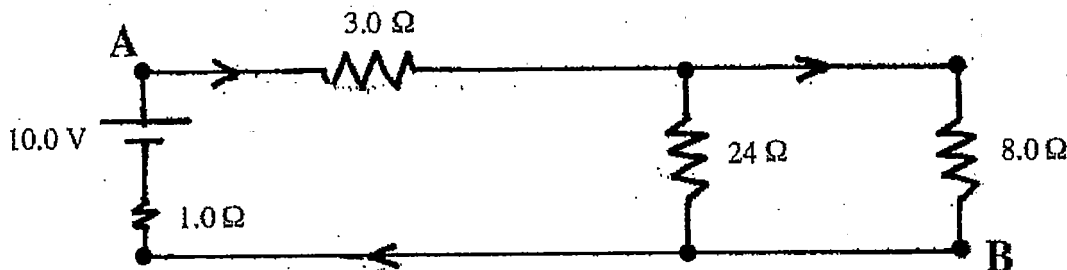
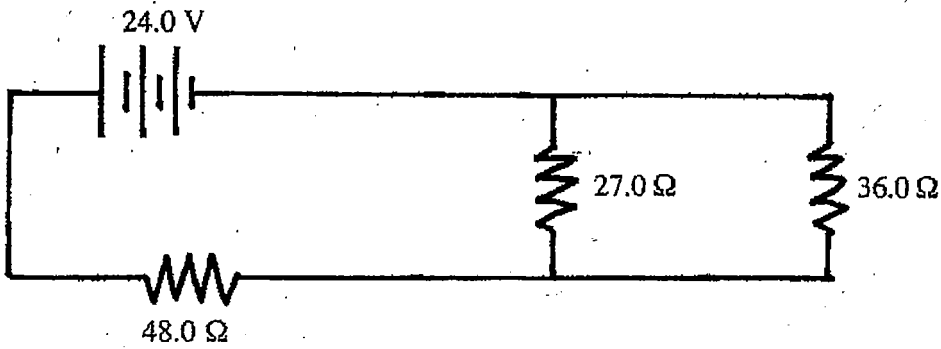


Electric Circuits Unit Review

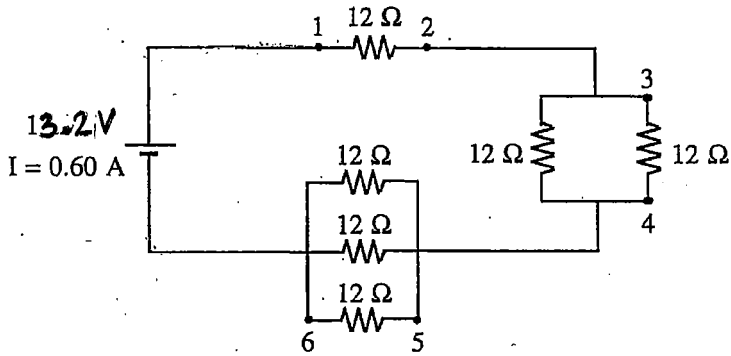
1. What is the current in a circuit if 12 C of charge pass a point in 1.5 seconds?
2. What is the resistance of a resistor if a current of 1.50 mA (milli amps) exists in the resistor when a potential difference of 45.0 V is applied to the ends of the resistor?
3. What resistance must a 60.0 W light bulb have if it is designed to operate from a 120.0 V source?
4. A 1500 W kettle is connected to a 110 V source. What is the resistance of the kettle element?
5. A current of 5.20 A flows for 1.4 s through a conductor. Calculate the number of electrons that pass through a point in the conductor in this time.
6. How long would it take 3.6×10^{20} electrons to pass through a point in a conductor if the current was 8.0 A?
7. A 15 V battery is connected to a 80Ω resistor. How much charge flows through the battery in 6.0 seconds?
8. What is the potential difference across a conductor to produce a current of 5.0 A if there is a resistance of 12.0Ω ?
9. Three 60 W light bulbs are connected in parallel with a 120 V source. What total current must the source supply to the three light bulbs?
10. Three resistors are connected in series with a 24 V battery. The resistors are 2.0Ω , 4.0Ω , and 6.0Ω .
 - a) Draw a sketch of the circuit.
 - b) What is the potential difference across the 4.0Ω resistor?
11. Three resistors are in parallel, and a total current of 36.0 A enters the parallel network. The resistors are 2.0Ω , 3.0Ω , and 6.0Ω .
 - a) Draw a sketch of the circuit.
 - b) What current exists in the 3.0Ω resistor?
12.
 - a) What is the equivalent resistance of the circuit?
 - b) What current exists at A?
 - c) What is the potential difference between the ends of the 8.0Ω resistor?
 - d) What current exists at B?



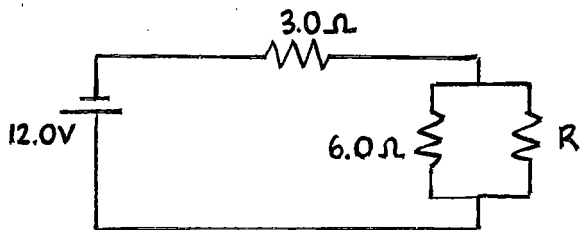
13. a) What is the total resistance of the circuit?
 b) What is the total current?



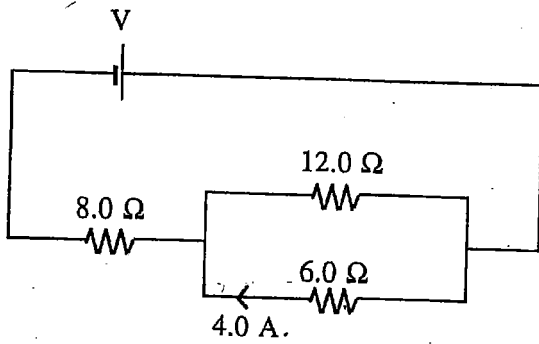
14. a) Find the total resistance of the circuit.
 b) What is the current in the 12 Ω resistor?
 (between 3 and 4)



15. The following circuit has a total resistance of 4Ω . What is the resistance of the resistor indicated? What is the current through that resistor?



16. What is the voltage V of the power supply?



17. a) What is the equivalent resistance of this circuit?
b) What is the current through the $54\ \Omega$ resistor?
c) How much power is dissipated in the $54\ \Omega$ resistor?

