G9 Science: Class 13 Homework

1. The total resistance of the circuit below is 25 Ω. The voltage across the battery is 6.0V.

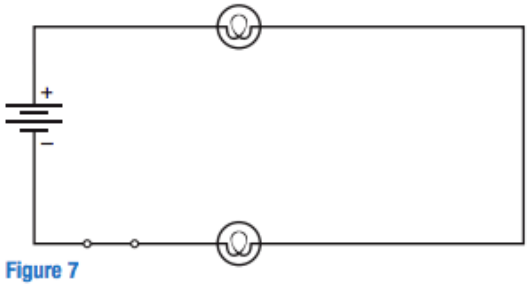
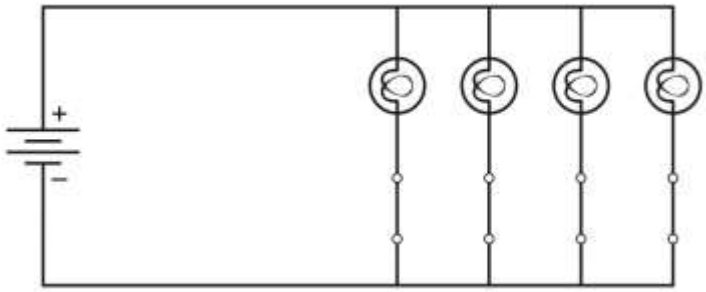


Figure 7

   a. Calculate the current in the circuit. **[3 marks]**

   b. Calculate the voltage drop across each lamp. **[2 marks]**

2. A house has a lamp in every room. The circuit for the lamps is shown below. The voltage drop across the energy source is 120V. The total resistance is 10Ω.



   a. Calculate the current through each lamp. **[3 marks]**

   b. Calculate the voltage drop across each lamp. **[1 mark]**

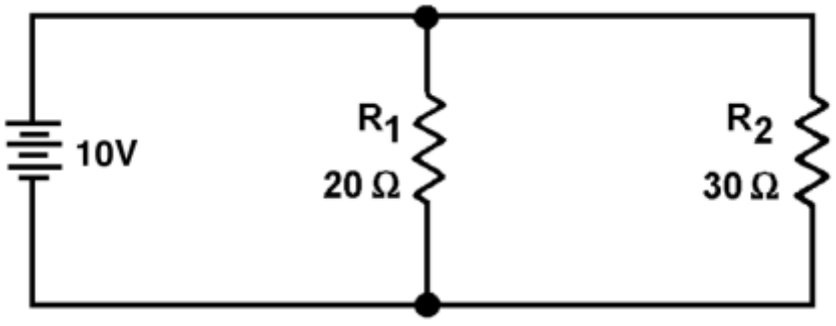
3. What would happen to the voltage drop across each lamp if you kept adding lamps to a series circuit? Explain your answer. **[3 marks]**

4. A battery-powered set of five patio lanterns is connected in series. An ammeter measures the current through the battery as 0.75A. The total resistance of the circuit is 52Ω.

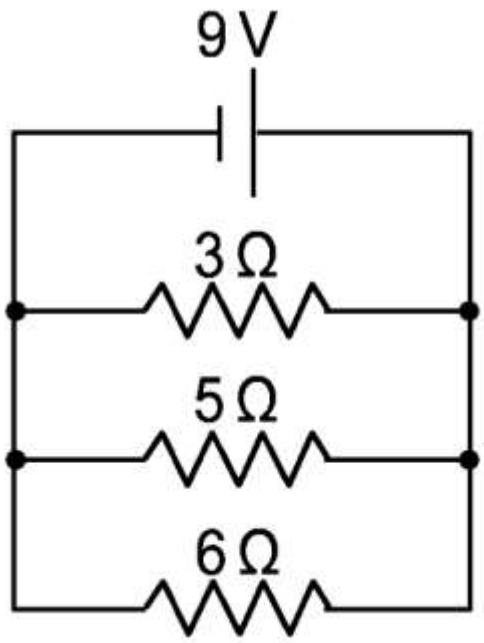
    a. Calculate the voltage drop across the battery. **[3 marks]**

    b. Calculate the voltage drop across each load. **[3 marks]**

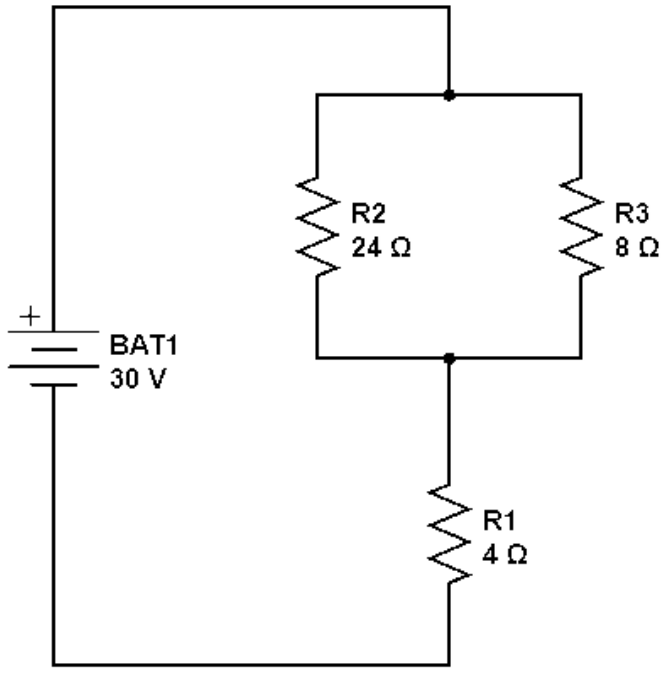
5. Find the potential difference and current for each resistor in the following circuit. **[4 marks]**



6. Find the potential difference and current for each resistor in the following diagram.
   [6 marks]



7. Find the potential difference and current for each resistor in the following diagram.
   [6 marks]



8. Find the potential difference and current for each resistor in the following diagram.
[10 marks]