

PQ8 Questions

Combined Circuits

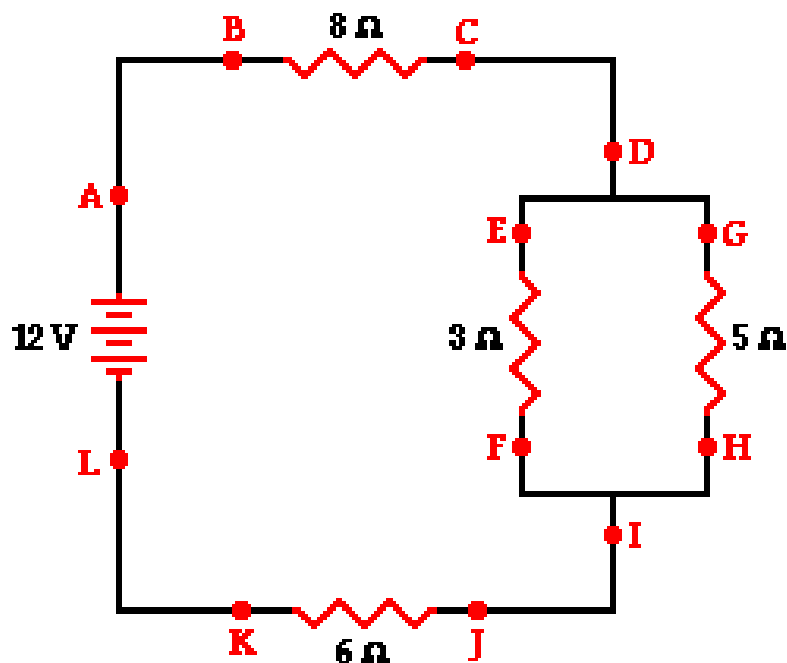
1. A combination circuit is shown in the diagram at the right. Use the diagram to answer the following questions.

a. The current at location A is _____ (greater than, equal to, less than) the current at location B.

b. The current at location B is _____ (greater than, equal to, less than) the current at location E.

c. The current at location G is _____ (greater than, equal to, less than) the current at location F.

d. The current at location E is _____ (greater than, equal to, less than) the current at location G.



e. The current at location B is _____ (greater than, equal to, less than) the current at location F.

f. The current at location A is _____ (greater than, equal to, less than) the current at location L.

f. The current at location H is _____ (greater than, equal to, less than) the current at location I.

2. Consider the combination circuit in the diagram at the right. Use the diagram to answer the following questions. (Assume that the voltage drops in the wires themselves are negligibly small.)

a. The electric potential difference (voltage drop) between points B and C is _____ (greater than, equal to, less than) the electric potential difference (voltage drop) between points J and K.

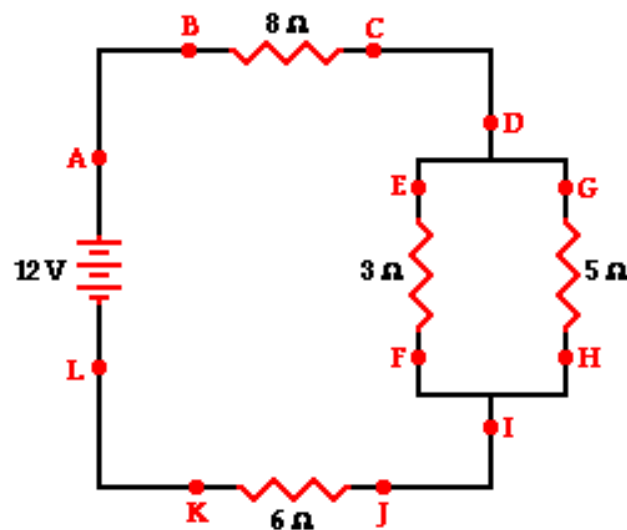
b. The electric potential difference (voltage drop) between points B and K is _____ (greater than, equal to, less than) the electric potential difference (voltage drop) between points D and I.

c. The electric potential difference (voltage drop) between points E and F is _____ (greater than, equal to, less than) the electric potential difference (voltage drop) between points G and H.

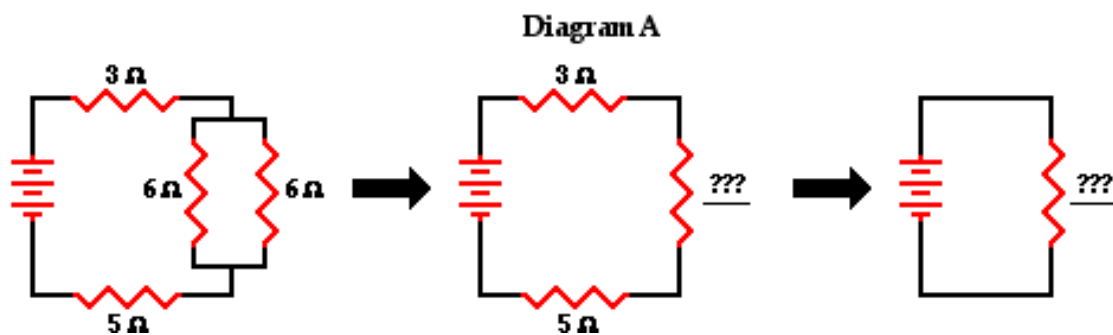
d. The electric potential difference (voltage drop) between points E and F is _____ (greater than, equal to, less than) the electric potential difference (voltage drop) between points D and I.

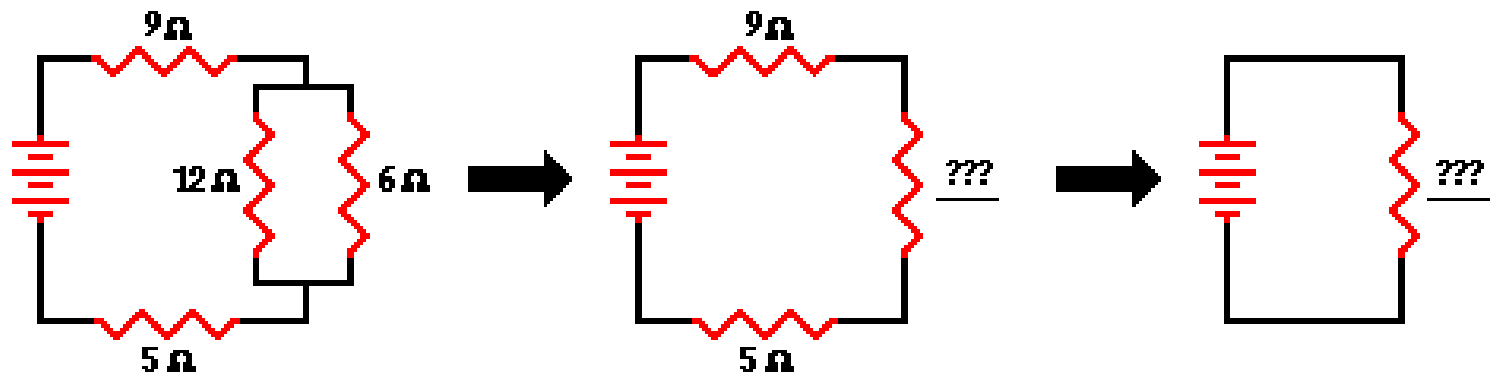
e. The electric potential difference (voltage drop) between points J and K is _____ (greater than, equal to, less than) the electric potential difference (voltage drop) between points D and I.

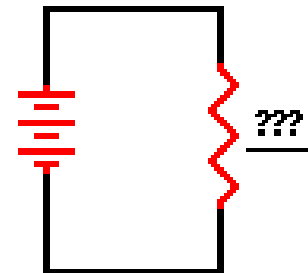
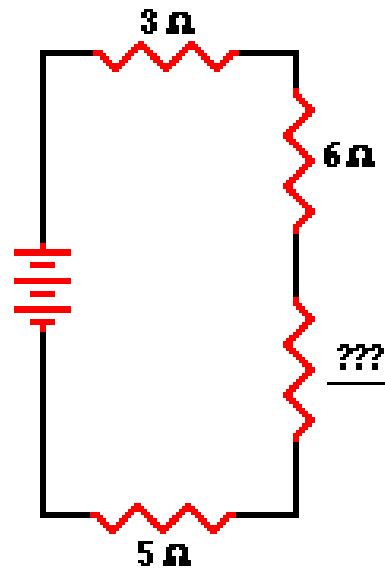
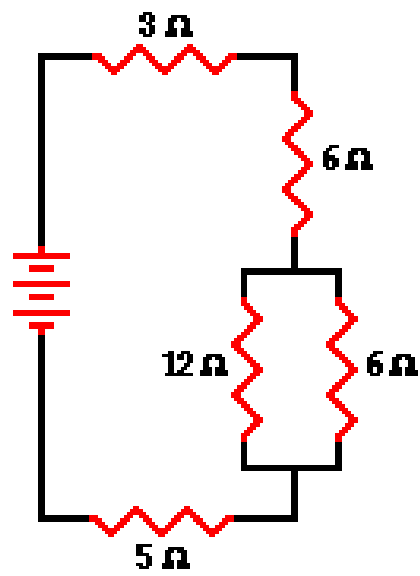
f. The electric potential difference between points L and A is _____ (greater than, equal to, less than) the electric potential difference (voltage drop) between points B and K.



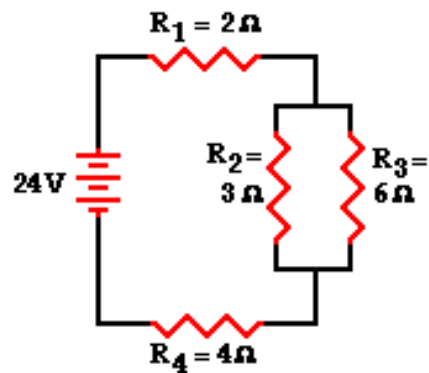
3. Use the concept of equivalent resistance to determine the unknown resistance of the identified resistor that would make the circuits equivalent.







4. Analyze the following circuit and determine the values of the total resistance, total current, and the current at and voltage drops across each individual resistor.



$$R_{\text{tot}} = \underline{\hspace{2cm}} \quad I_{\text{tot}} = \underline{\hspace{2cm}}$$

$$I_1 = \underline{\hspace{2cm}} \quad \Delta V_1 = \underline{\hspace{2cm}}$$

$$I_2 = \underline{\hspace{2cm}} \quad \Delta V_2 = \underline{\hspace{2cm}}$$

$$I_3 = \underline{\hspace{2cm}} \quad \Delta V_3 = \underline{\hspace{2cm}}$$

$$I_4 = \underline{\hspace{2cm}} \quad \Delta V_4 = \underline{\hspace{2cm}}$$