

Electrics 2

1. The current passing through a resistor in a circuit is 0.01 A when the voltage across the same resistor is 5 V. What current passes through this resistor when the voltage across it is 7.5 V?
2. In a series circuit with a 12-volt battery, if there are two resistors of 4 ohms and 6 ohms - what is the current flowing through the circuit?
3. A 12 Volt car battery pushes charge through a headlight circuit with the current 1.2 A. What is the resistance of headlight circuit?
4. What happens to the current in a circuit if a 1.5-volt battery is removed and is replaced by a 3-volt battery?
5. What happens to the current in a circuit if a $10\ \Omega$ resistor is removed and replaced by a $20\ \Omega$ resistor?
6. A copper wire with the diameter 2 mm will be replace by an aluminium one with the same length and resistance. What will be the thickness (diameter or radius) of the aluminium wire? (when the electrical resistivities of copper and aluminium are: $\rho_1 = \rho_{\text{copper}} = 0.017 \cdot 10^{-6}\ \Omega \cdot \text{m}$, $\rho_2 = \rho_{\text{alumin}} = 0.027 \cdot 10^{-6}\ \Omega \cdot \text{m}$).

HW: What is the current produced by a 9 V battery, flowing through a resistance of $200\ \Omega$?