9 Science (10FI)

Ohm's Law

Sample Problems:

① What is the current for a voltage of 15V and a resistance of 5Ω?

$V = 15V$ $\quad I = V \div R$
$R = 5\Omega$ $\quad I = 15V \div 5\Omega$
$I = ?$ $\quad I = 3A$

The current is 3A.

② If the current is 1.20A and the resistance is 100Ω, what is the voltage?

$I = 1.20A$
$R = 100\ \Omega$ $\quad V = I \times R$
$V = ?$ $\quad V = (1.20A)(100\ \Omega)$
$V = 120V$

The voltage is 120V.

③ If the voltage is 320V and the current is 18.5A, what is the resistance?

$V = 320V$ $\quad R = V \div I$
$I = 18.5A$ $\quad R = (320V) \div (18.5A)$
$R = ?$ $\quad R = 17.3\ \Omega$

The resistance is 17.3Ω.

Practice Problems:

1. If the current is 4.7 A and the resistance of 26Ω, what is the voltage?
2. Calculate the voltage if the current is 0.5 A and the resistance is 15 Ω.
3. Calculate the voltage if the resistance is 12 Ω and the current is 0.7 A.
4. Calculate the current if the voltage is 120 V and the resistance is 34 Ω.
5. Calculate the current if the resistance is 24 Ω and the voltage is 110 V.
6. Calculate the resistance if the voltage is 115 V and the current is 1.2 A.
7. Calculate the resistance if the current is 0.8 A and the voltage is 130 V.