What is Ohm's Law?

Worksheet

Ohm's law states that voltage equals current times resistance: V = I R, where V is in volts, I is in amperes, and R is in ohms ().

V = IR

Questions

1. Ohm's law is written as:

A) V = I/R
B) V = I R
C) V = R/I
D) V = I + R

2. A 3 A current flows through a 15 resistor. What is the voltage?

A) 5 V
B) 18 V
C) 45 V
D) 12 V

3. If resistance doubles while voltage stays the same, current:

A) Doubles
B) Halves
C) Stays the same
D) Quadruples

4. What is the SI unit of resistance?

A) Volt
B) Ampere
C) Ohm
D) Watt

5. A resistor of 20 has a current of 0.5 A flowing through it. Find the voltage across it.

6. A 12 V battery is connected to a 4 resistor. Find the current.

7. A lamp draws 0.25 A when connected to a 6 V source. Find its resistance.

8. Define: State Ohm's law.

9. Define: What is the unit of resistance?

10. Define: How do you find current from Ohm's law?

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Answer Key

1. B) V = I R - Ohm's law: V = I R.
2. C) 45 V - V = I R = 3 15 = 45 V.
3. B) Halves - I = V/R, so doubling R halves I when V is fixed.
4. C) Ohm - Resistance is measured in ohms ().
5. V = I R V = 0.5 20 = 10 V
6. V = I R I = V / R I = 12 / 4 = 3 A
7. V = I R R = V / I R = 6 / 0.25 = 24
8. V = I R - voltage equals current multiplied by resistance.
9. The ohm ().
10. I = V / R.

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