

L.1 Electrical Circuits

Practice Worksheet – name: _____ date: _____

FORMULAS FOR THIS TOPIC

OHM'S LAW $V = IR$ ELECTRICAL POWER $P = VI$ RESISTORS IN SERIES $R_{total} = R_1 + R_2 + \dots$ RESISTORS IN PARALLEL $\frac{1}{R_{total}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$

SECTION A — MULTIPLE CHOICE

A1. If a potential difference of 12 V is applied across a 4 Ohm resistor, what is the current?

- A 3 A
- B 8 A
- C 16 A
- D 48 A

A2. In a series circuit, how behaves the current at different points?

- A It divides among the components
- B It is the same at all points
- C It increases with each resistor
- D It drops to zero after the first component

SECTION B — SHORT ANSWER

B1. Describe the difference between series and parallel circuits regarding potential difference.

B2. State Ohm's Law and explain its limitations.

ANSWER KEY

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Section A

A1: 3 A

A2: It is the same at all points

Section B

B1: In a series circuit, the total voltage of the source is split among the components. In a parallel circuit, each branch experiences the full potential difference of the source.

B2: Ohm's Law states that the current through a conductor is directly proportional to the potential difference across it, provided temperature and other physical conditions remain constant. It does not apply to non-ohmic components like filament lamps.