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Crash Course - PHYSICS 46 Episode Series Bundle

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Crash Course Physics #30: Circuit Analysis

Name: _____ Date: _____

You can access the video here → <https://youtu.be/-w-YT6@QIE7hi-1pmQc-2XTSAOLU7>

1. Circuit analysis is the process of breaking down a circuit into its key _____ and studying each one.
2. Voltage, resistance, and current are related by _____ Law.
3. Resistors in _____ share the same current but have different voltage drops.
4. In _____ connections, all branches share the same voltage drop.
5. The _____ resistance of a series connection is the sum of all resistances.
6. The equivalent resistance of a parallel connection is always _____ than any of the individual resistors.
7. The equation _____ is used to calculate voltage drop across a resistor.
8. The principle that current entering a junction equals current leaving it is called conservation of _____.
9. A _____ is used to measure voltage across a component.
10. A voltmeter should be connected in _____ with the device being measured.
11. Voltmeters have very _____ resistance to avoid affecting the circuit.
12. An _____ is used to measure current in a circuit.
13. Ammeters must be connected in _____ with the circuit element whose current is being measured.
14. Ammeters have _____ resistance so they don't affect the circuit current.
15. Connecting a voltmeter in series or an ammeter in parallel can result in _____ or incorrect readings.

Crash Course Physics #30: Circuit Analysis KEY

1. Circuit analysis is the process of breaking down a circuit into its key **components** and studying each one.
2. Voltage, resistance, and current are related by **Ohm's** Law.
3. Resistors in **series** share the same current but have different voltage drops.
4. In **parallel** connections, all branches share the same voltage drop.
5. The **equivalent** resistance of a series connection is the sum of all resistances.
6. The equivalent resistance of a parallel connection is always **smaller** than any of the individual resistors.
7. The equation $V = I \times R$ is used to calculate voltage drop across a resistor.
8. The principle that current entering a junction equals current leaving it is called conservation of **charge**.
9. A **voltmeter** is used to measure voltage across a component.
10. A voltmeter should be connected in **parallel** with the device being measured.
11. Voltmeters have very **high** resistance to avoid affecting the circuit.
12. An **ammeter** is used to measure current in a circuit.
13. Ammeters must be connected in **series** with the circuit element whose current is being measured.
14. Ammeters have **low** resistance so they don't affect the circuit current.
15. Connecting a voltmeter in series or an ammeter in parallel can result in **damage** or incorrect readings.

15 Questions

Answer Key Included

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