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Crash Course Physics #36: AC Circuits

Name: _____ Date: _____

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1. In an AC circuit, the voltage and current vary over time in a pattern described by a _____ function.
2. The highest absolute value of current in an AC circuit is called the _____ current.
3. To measure the "effective" value of an alternating current, we use the _____ current.
4. The RMS value of voltage is equal to the peak voltage divided by the _____ of 2.
5. The opposing electromotive force induced in a coil due to a changing current is known as _____.
6. Lenz's Law states that the induced current will always oppose the change in _____ that caused it.
7. The constant "L" that measures how effectively a coil induces an emf is called _____.
8. Inductance is measured in units called _____.
9. Components specifically designed to have inductance are called _____.
10. In a DC circuit, current through an inductor increases over time following a curve described by the expression: one minus e to the power of negative t over tau.
11. In an AC circuit, the current through a resistor is said to be _____ with the voltage.
12. In an AC circuit with only an inductor, the current _____ the voltage by 90 degrees.
13. In an AC circuit with only a capacitor, the current _____ the voltage by 90 degrees.
14. Inductors and capacitors don't dissipate much heat because they have negligible _____.
15. In a series AC circuit, the total voltage is equal to the _____ of the voltage drops across each component.

Crash Course Physics #36: AC Circuits KEY

1. In an AC circuit, the voltage and current vary over time in a pattern described by a **sine** function.
2. The highest absolute value of current in an AC circuit is called the **peak** current.
3. To measure the "effective" value of an alternating current, we use the **RMS** current.
4. The RMS value of voltage is equal to the peak voltage divided by the **square root** of 2.
5. The opposing electromotive force induced in a coil due to a changing current is known as **self-inductance**.
6. Lenz's Law states that the induced current will always oppose the change in **magnetic flux** that caused it.
7. The constant "L" that measures how effectively a coil induces an emf is called **inductance**.
8. Inductance is measured in units called **Henrys**.
9. Components specifically designed to have inductance are called **inductors**.
10. In a DC circuit, current through an inductor increases over time following a curve described by the expression: one minus e to the power of negative t over tau.
11. In an AC circuit, the current through a resistor is said to be **in phase** with the voltage.
12. In an AC circuit with only an inductor, the current **lags** the voltage by 90 degrees.
13. In an AC circuit with only a capacitor, the current **leads** the voltage by 90 degrees.
14. Inductors and capacitors don't dissipate much heat because they have negligible **resistance**.
15. In a series AC circuit, the total voltage is equal to the **sum** of the voltage drops across each component.

15 Questions

Answer Key Included

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