

26 Lecture - PHY301

Important Subjective

What is Norton's Theorem?

Answer: Norton's Theorem states that any linear circuit with two terminals can be replaced by an equivalent circuit consisting of a single current source in parallel with a resistor.

How do you find the short-circuit current for a circuit using Norton's Theorem?

Answer: The short-circuit current is found by connecting a wire across the two terminals of the circuit and applying Kirchhoff's Current Law (KCL).

How do you find the equivalent resistance for a circuit using Norton's Theorem?

Answer: The equivalent resistance is found by removing all independent sources from the circuit and shorting the two terminals. The equivalent resistance is then equal to the resistance measured between the two terminals.

What is the value of the current source in a Norton equivalent circuit?

Answer: The value of the current source in a Norton equivalent circuit is equal to the short-circuit current of the original circuit.

What is the value of the resistor in a Norton equivalent circuit?

Answer: The value of the resistor in a Norton equivalent circuit is equal to the equivalent resistance of the original circuit.

How can Norton's Theorem be used to simplify complex circuits?

Answer: Norton's Theorem can be used to replace a complex circuit with a simpler Norton equivalent circuit, which can make calculations easier.

Can Norton's Theorem be applied to non-linear circuits?

Answer: No, Norton's Theorem can only be applied to linear circuits.

What is the main difference between Thevenin's Theorem and Norton's Theorem?

Answer: The main difference between Thevenin's Theorem and Norton's Theorem is that Thevenin's Theorem replaces a circuit with a voltage source and a resistor, while Norton's Theorem replaces a circuit with a current source and a resistor.

How do you find the current through a load resistance in a Norton equivalent circuit?

Answer: The current through a load resistance is found by multiplying the Norton current source by the load resistance divided by the sum of the load resistance and the Norton equivalent resistor.

Can Norton's Theorem be used to find the voltage across a load resistance?

Answer: No, Norton's Theorem cannot be used to find the voltage across a load resistance directly. The voltage can be found by multiplying the current through the load resistance by the load resistance itself.