BASIC CIRCUIT LAWS AND THEOREMS

Ohm Law	$V=IR$
Kirchoff's <u>Current</u> Law	$\Sigma i = 0$ The algebraic sum of all the currents entering any circuit node is zero at every instant.
Kirchoff's <u>Voltage</u> Law	$\Sigma v = 0$ The algebraic sum of all the voltages around any closed circuit is zero at every instant.
Thevenin s Theorem	A linear two-terminal network can be replaced by an equivalent circuit of a voltage source, V_{TH}, in series with a resistor, R_{TH}. V_{TH} is the open-circuit voltage of the original circuit and R_{TH} is the resistance value looking into the two terminals, with all constant voltage sources shorted and all constant current sources opened.
Norton s Theorem	A linear two terminal network can be replaced by a circuit of a current source, I_N, in parallel with a resistor, R_N. I_N is the short-circuit current across the terminal of the original circuit and R_N is the resistance value looking into the terminal, with all constant voltage sources shorted and all constant current sources opened.
Superposition Theorem	The output voltage across (or current through) any linear circuit can be found by taking the algebraic sum of the output voltages (currents) created by each independent source acting alone
Maximum Power Transfer Theorem	A source with a fixed Thevenin resistance R_{TH} delivers maximum power to an adjustable load R_L when $R_{TH} = R_L$