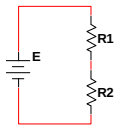
DC Kirchhoff's Voltage Law (1:36:58)

Describe in your own words Kirchhoff's Voltage Law

Describe how polarity influences whether a voltage change is consider a rise or drop.



Write the KVL equation for the above circuit.

Given the above circuit and E = 7V, R_1 = 130Ω and R_2 = 220Ω, solve for R_T, I_s, I_1, I_2, V_1, and V_2 making use of KVL. Does Ohm's Law agree with KVL? Does the summation of rises equal the summation of drops?

Given the above circuit and unknown resistance values E = 7V, V_1 = 2.6V solve for V_2 using KVL only.

Given the above circuit and V_1 = 30V and V_2 = 18V solve for E using KVL only.

Explain how ground references affect a circuit.

(26:13 to 32:09) Given a series relationship of 4 unknown devices, solve for V_3 using KVL only.

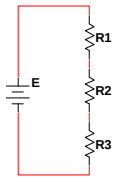
Describe a series aiding relationship.

(38:00 to 48:55) Given this circuit solve for V_1, V_2, V_{AE}, and V_{CF} using KVL.

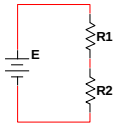
Describe a series opposing relationship.

(48:55 to 56:30) Apply KVL to the battery charging circuit when E_2 = 11.6V and when E_2 = 12.1V and when E_2 = 14.1V

Describe why voltage sources with different values are never placed in parallel with one another.



Given the above circuit and E = 24V, R_2 = 200Ω, R_3 = 600Ω, and V_1 = 4V, solve for R_T, R_1, I_s, I_1, I_2, V_2, P_T, P_1, P_2, and P_3 making use of KVL.



Given the above circuit and E = 16V, R_1 = 300Ω and R_2 = 200Ω, solve for R_T, I_s, I_1, I_2, V_1, and V_2 making use of KVL. Comment on troubleshooting scenarios in which observed values are different from expectations.

Describe how a reverse biased diode acts in series circuit.

Describe how a forward biased diode with a voltage drop acts in series circuit.

Determine the resistance necessary to limit current to 24 mA for a diode with a 1.8V drop when supplied by a 5V source.

Describe why inrush occurs for motors at a dead stop (locked rotor conditions).

Describe how the CEMF generated by a spinning armature keeps current draw manageable for a moving motor.