

1. ELECTRONIC FORMULAS

DIRECT CURRENT

A DIRECT CURRENT (DC) FLOWS IN ONE DIRECTION, EITHER STEADILY OR IN PULSES.

CURRENT (I) - THE QUANTITY OF ELECTRONS PASSING A GIVEN POINT. (UNIT: AMPERE)

VOLTAGE (V) - ELECTRICAL PRESSURE OR FORCE. (UNIT: VOLT)

RESISTANCE (R) - RESISTANCE TO THE FLOW OF A CURRENT. (UNIT: OHM)

POWER (P) - THE WORK PERFORMED BY A CURRENT. (UNIT: WATT)

POTENTIAL DIFFERENCE - THE DIFFERENCE IN VOLTAGE BETWEEN THE TWO ENDS OF A CONDUCTOR THROUGH WHICH A CURRENT FLOWS. ALSO KNOWN AS VOLTAGE DROP.

OHM'S LAW

A POTENTIAL DIFFERENCE OF 1 VOLT WILL FORCE A CURRENT OF 1 AMPERE THROUGH A RESISTANCE OF 1 OHM, OR:

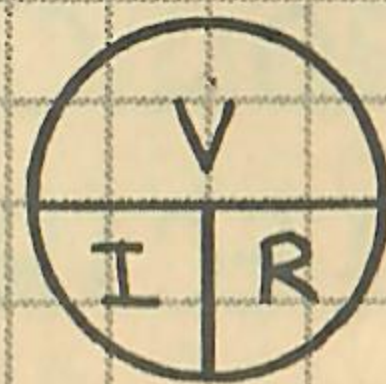
$$V = I \times R$$

$$I = \frac{V}{R}$$

$$R = \frac{V}{I}$$

$$P = I \times V \text{ (OR) } I^2 \times R$$

OHM'S LAW HELPER

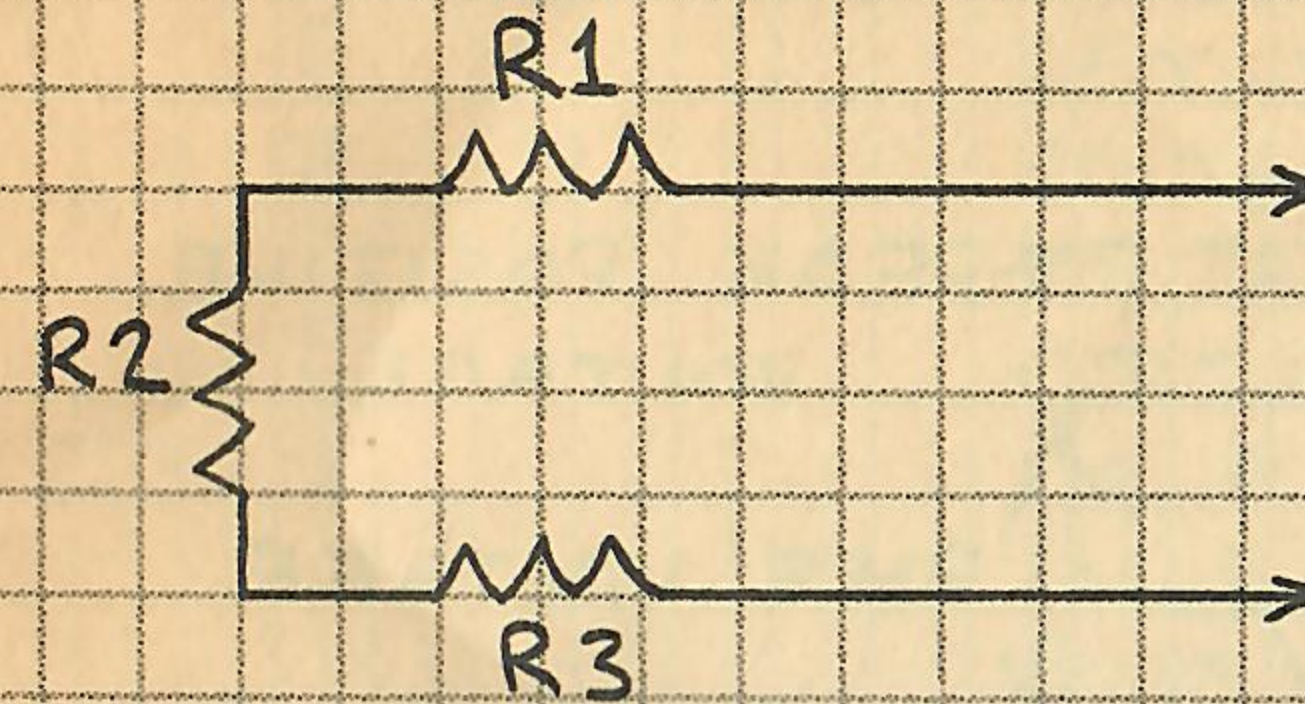


THIS DIAGRAM SHOWS THE RELATIONSHIP OF V, I AND R.

RESISTOR NETWORKS

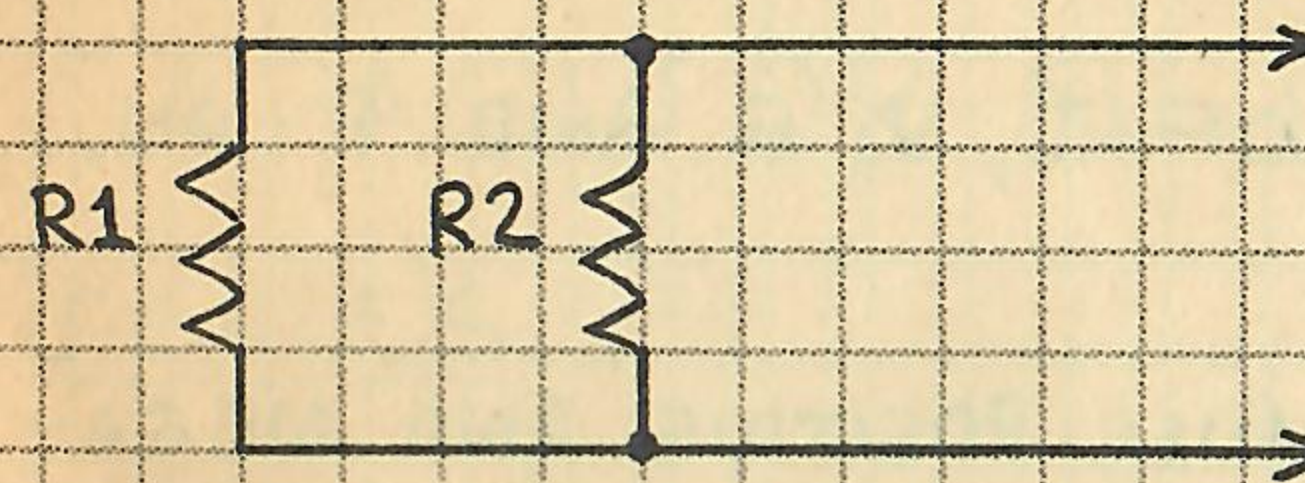
SERIES

$R_T = \text{TOTAL RESISTANCE}$



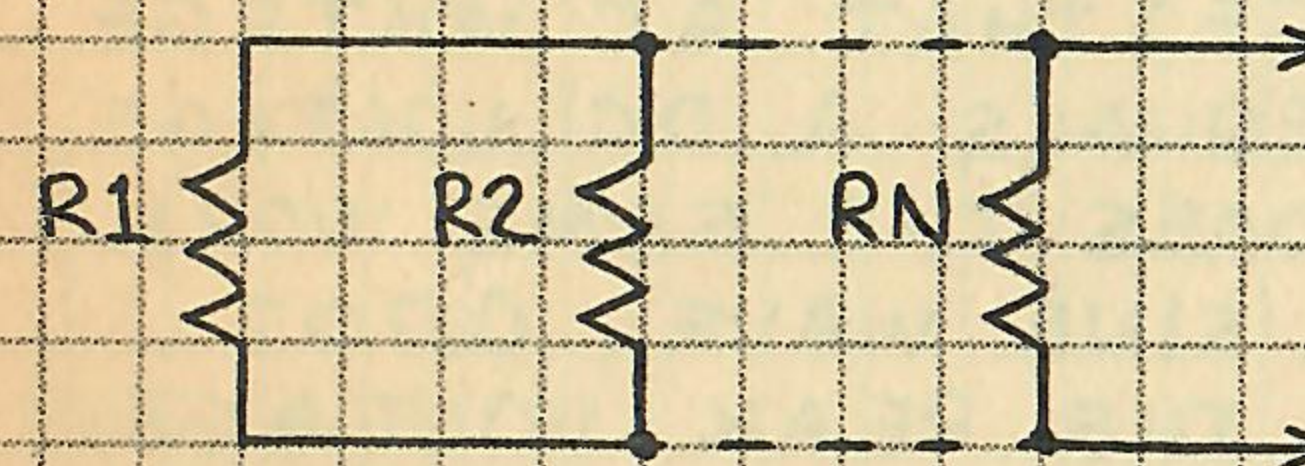
$$R_T = R_1 + R_2 + R_3$$

PARALLEL (2)



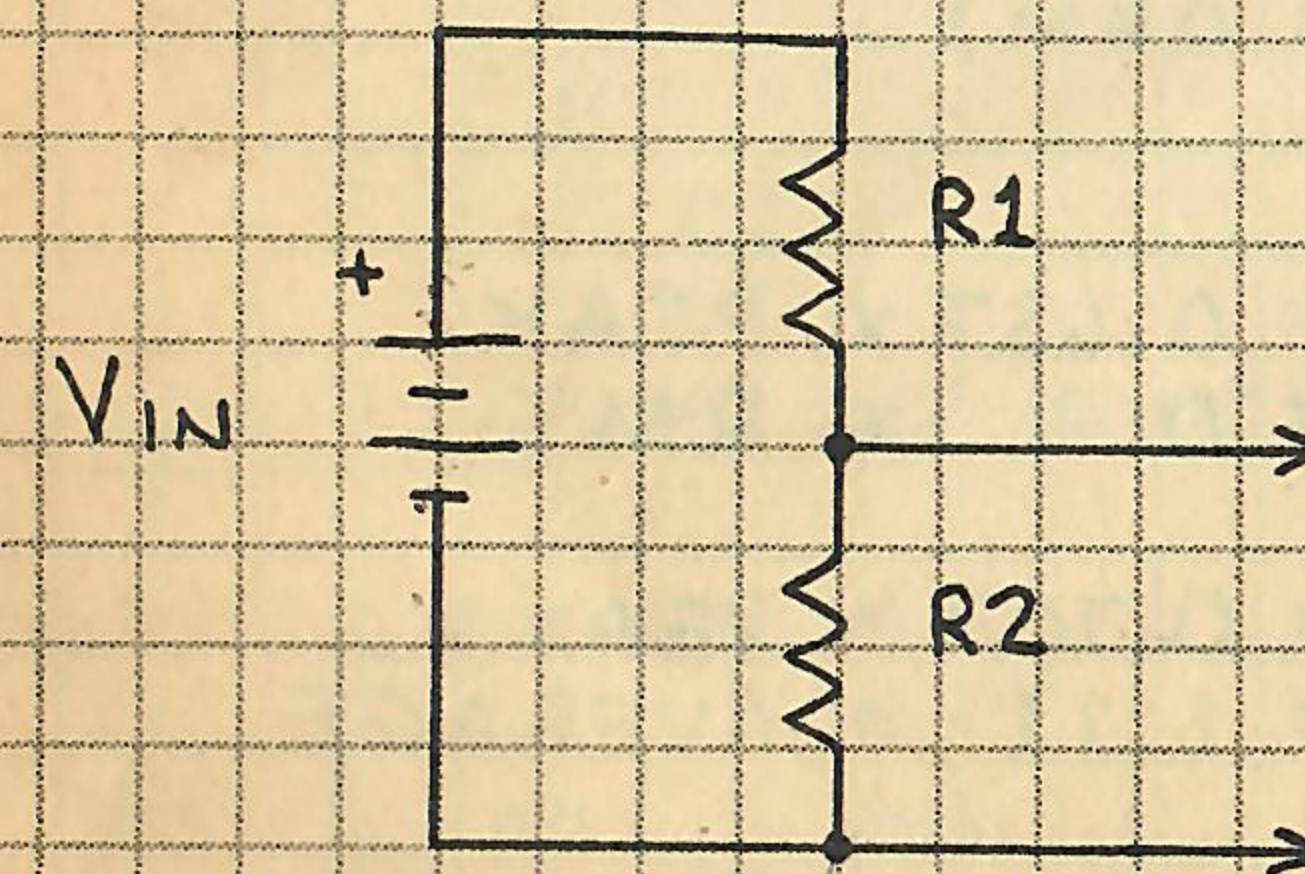
$$R_T = \frac{R_1 \times R_2}{R_1 + R_2}$$

PARALLEL (2 OR MORE)



$$R_T = \frac{1}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_N}}$$

VOLTAGE DIVIDER



$$V_{OUT} = V_{IN} \times \left(\frac{R_2}{R_1 + R_2} \right)$$

R1 AND R2 CAN BE A POTENTIOMETER.