Resistors

- **Electrical resistance**

$$R = (\rho l) / A$$

R = Resistance

ρ = Resistivity

A = Cross sectional area

l = The length of the conductor

- **Resistance (ρ) = RA/ l**
- **Conductance (G) = 1/G**
- **Conductivity (σ) = 1/ρ**

- **Changing of resistance with temperature**

$$R_\theta = R_0(1 + a\theta)$$

R_0= Resistance at 0 °C

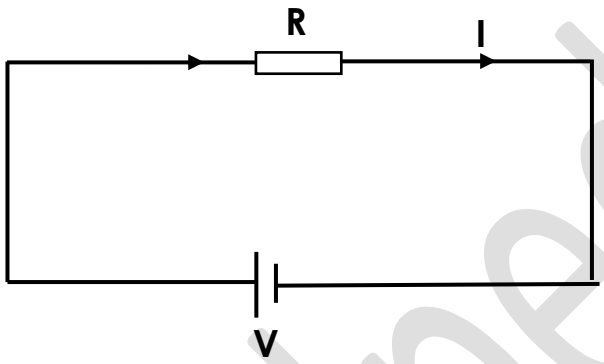
a = Temperature Coefficient of Resistance

θ = temperature of resistor

R_θ =Value of resistance at the considered temperature

- **Ohm rule**

➢ When physical factors such as the temperature of a conductor remain constant, the potential gap is inversely proportional to the current.



$$V = IR$$

- **Resistance systems**

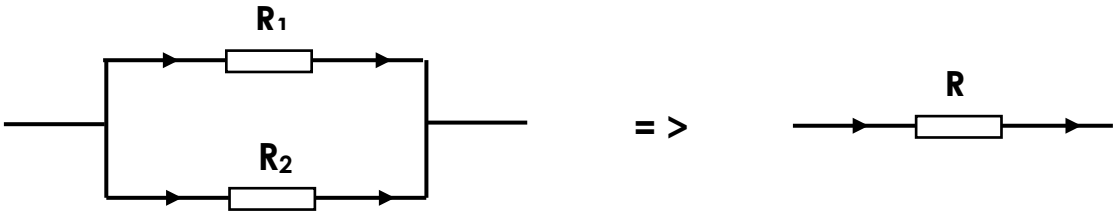
1. Series resistor systems

$$R = R_1 + R_2$$

➢ The same current flows through series resistors.

➢ The sum of the potentials of resistors are equal to the potential of equatorial potential.

2. Parallel resistance systems



$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}$$

- Same potential difference to every resistor, but current will be divided.
- If resistance is high, the current is low.