Series means that the devices are connected in such a way that there is the same electric current through each device

$$V = V_1 + V_2$$

$$V = IR_1 + IR_2$$

$$V = I(R_1 + R_2)$$

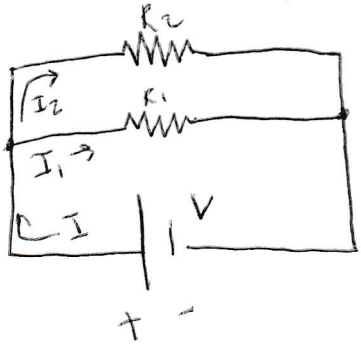
$$V = IR_S$$

dissipation $= P = I^2 R$

$$R_S = R_1 + R_2 + R_3 + \dots$$ series resistance

Parallel wiring

means that the devices are connected in such way that the voltage is aplied across each wire



$$I = I_1 + I_2$$

$$= \frac{V}{R_1} + \frac{V}{R_2}$$

$$= V\left(\frac{I}{R_1} + \frac{1}{R_2}\right)$$

$$= V\left(\frac{1}{R_p}\right)$$

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$$