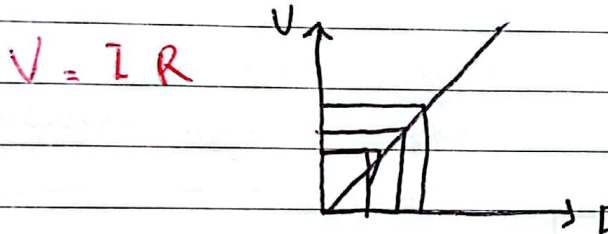
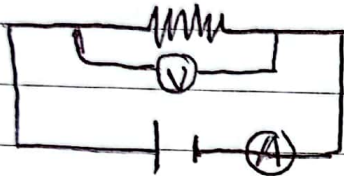


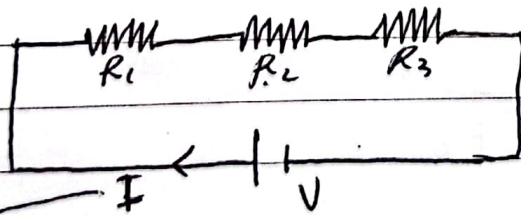
Elektrodinamika

① Hukum ohm (hubungan V dgn I dimana R tetap)



② Rangkaian listrik

a) Susunan Hambatan Seri



(arus akan tetap sama)

→ yg dicari I

$$I = \frac{V}{(R_1 + R_2 + R_3)}$$

$$I \cdot R_1 = I R_2 = I R_3$$

$$I_{R_1} = \frac{V}{(R_1 + R_2 + R_3)} = \frac{V}{R_t}$$

$$I_{R_2} = \frac{V}{(R_1 + R_2 + R_3)} = \frac{V}{R_t}$$

$$I_{R_3} = \frac{V}{(R_1 + R_2 + R_3)} = \frac{V}{R_t}$$

tegangan di R_1

$$V_{R_1} = I \cdot R_1$$

$$V_{R_1} = \frac{V}{(R_1 + R_2 + R_3)} R_1$$

di R_2

$$V_{R_2} = I \cdot R_2$$

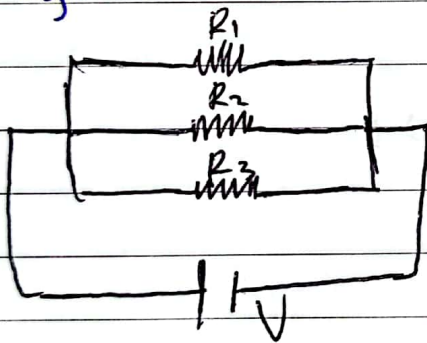
$$V_{R_2} = \frac{V}{(R_1 + R_2 + R_3)} R_2$$

di R_3

$$V_{R_3} = I \cdot R_3$$

$$V_{R_3} = \frac{V}{(R_1 + R_2 + R_3)} R_3$$

b.) Rangkaian Paralel (Tegangan di R_1, R_2, R_3 sama dengan sumber)



$$V_{R_1} = V_{R_2} = V_{R_3} = V$$

$$I_{R_1} = \frac{V}{R_1}$$

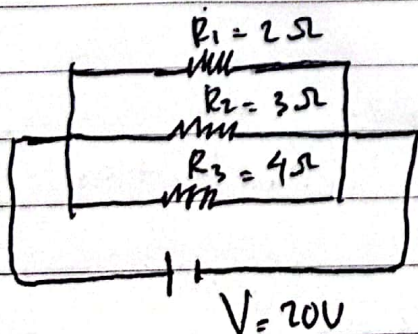
$$I_{R_3} = \frac{V}{R_3}$$

$$I_{R_2} = \frac{V}{R_2}$$

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

$$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

*contoh =

ditanya: 1) R_{total} 2) arus R_1 3) arus R_2

Penyelesaian:

$$1) \frac{1}{R_t} = \frac{1}{2} + \frac{1}{3} + \frac{1}{4}$$

$$= \frac{6}{12} + \frac{4}{12} + \frac{3}{12}$$

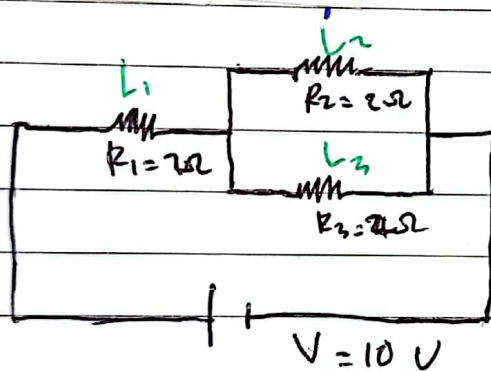
$$= \frac{13}{12} = \frac{12}{13}$$

$$I = \frac{V}{R_t} \Rightarrow I = \frac{\frac{20}{12}}{\frac{12}{13}}$$

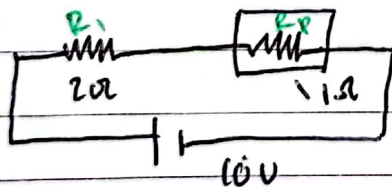
$$= 21,73 \Omega$$

$$2) I_{R_1} = \frac{V}{R_1} = \frac{20}{2} = 10$$

$$3) I_{R_2} = \frac{V}{R_2} = \frac{20}{3} = 6,6$$



penyederanaan :



$$I = \frac{10}{3} = 3,3 A$$

$$\frac{1}{R_p} = \frac{1}{2} + \frac{1}{2}$$

$$\frac{1}{R_p} = \frac{2}{2}$$

$$R_p = 1 \Omega$$

$$R_t = R_1 + R_p = 2 + 1 = 3 \Omega$$

$$I_t = \frac{V}{R_t} = \frac{10}{3} = 3,33 A$$

$$I_{R_1} = 3,33 A$$

$$I_{R_p} = 3,33 \rightarrow V_{R_p} = R_p \cdot I$$

$$= 1 \cdot 3,33 = 3,3 \text{ Volt}$$

$$I_{R2} = I_{R3} = \frac{V_{RE}}{R_2} \\ = \frac{3.33}{2}$$

maka $I_2 = I_3$ lebih terang dibandingkan I_1 lebih redup.