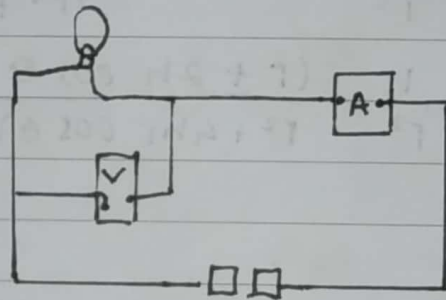
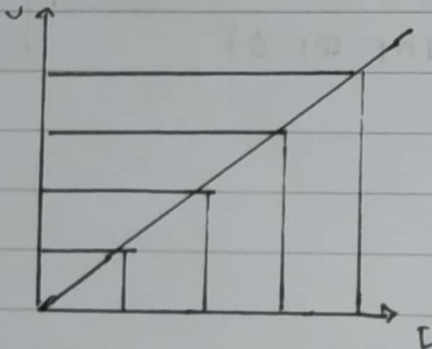
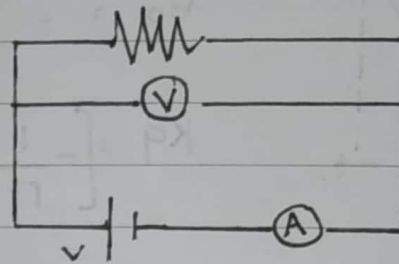
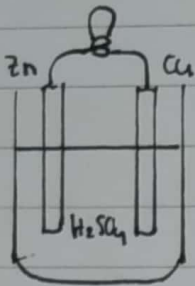


## Elektrodinamika

1. hukum Ohm
2. Rangkaian listrik

Pembahasan :

1).  $J = 6E$  ✓ DC $V = IR$  ✓ AC

$$V = IR$$

$V_1 = 6V$

$I_1 = 3A$

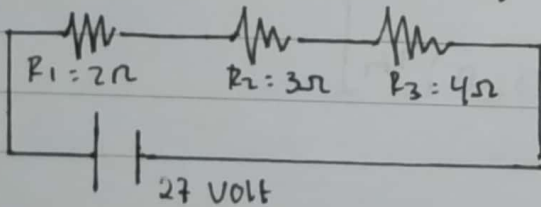
$V_2 = 9V$

$I_2 = 3A$

$V_3 = 12V$

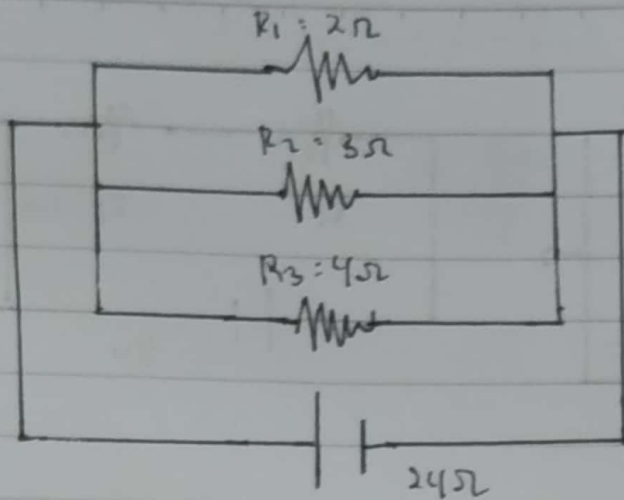
$I_3 = 3A$

2).



$R_t = 9$

$$I_{\text{total}} = \frac{27}{9} = 3A$$



$$V \text{ di } R_1, R_2, R_3 = 24 \text{ V}$$

$$I_1 = 12 \text{ A}$$

$$I_2 = 8 \text{ A}$$

$$I_3 = 6 \text{ A}$$

$$I_{\text{total}} = 26 \text{ A}$$

$$R_{\text{total}} \Rightarrow \frac{1}{R_{\text{total}}} = \frac{1}{2} + \frac{1}{3} + \frac{1}{4}$$

$$\frac{1}{R} = \frac{6 + 4 + 3}{12}$$

$$\frac{1}{R} = \frac{13}{12}$$

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

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

$$= \frac{24}{12/13} = 24 \times \frac{13}{12} = 26 \text{ A}$$

$$P_1 = V \cdot I \quad > \quad P_2 = V \cdot I \quad > \quad P_3 = V \cdot I$$

$$= 24 \cdot 12$$

$$= 24 \cdot 8$$

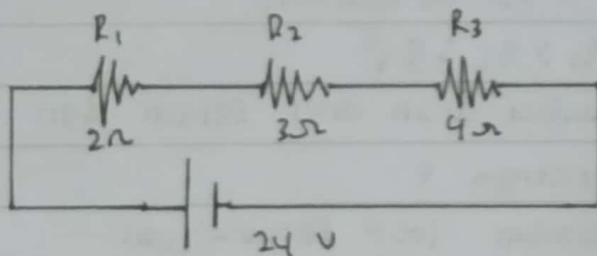
$$= 24 \cdot 6$$

$$= 288 \text{ W}$$

$$= 192 \text{ W}$$

$$= 144 \text{ W}$$

$$P = 14,25 \text{ W} \quad P = 21,38 \text{ W} \quad P = 28,51 \text{ W}$$



$$I_{123} = \frac{24}{9} = 2,67$$

$$V_1 = I \cdot R_1 = 5,34 \text{ V}$$

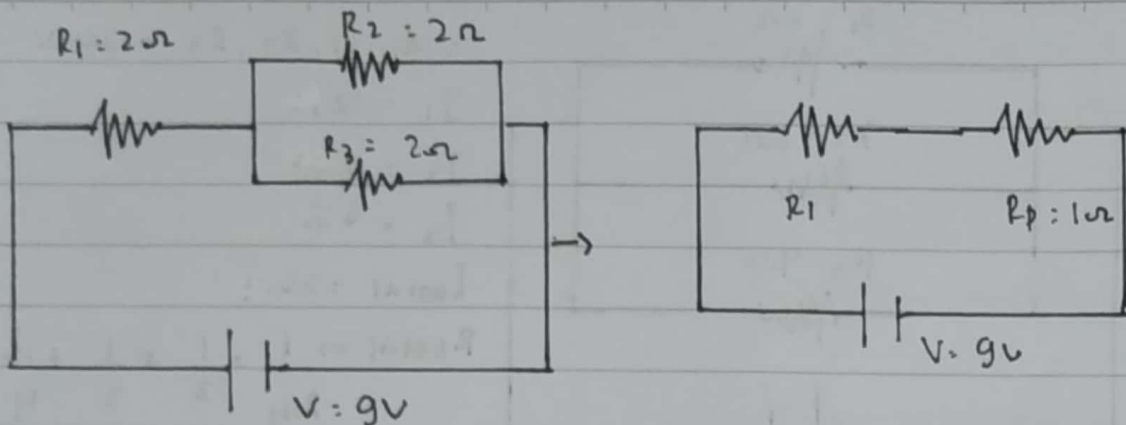
$$V_2 = I \cdot R_2 = 8,01 \text{ V}$$

$$V_3 = I \cdot R_3 = 10,68 \text{ V}$$

$$P_1 = V_1 \cdot I_{\text{total}}$$

$$= 5,34 \times 2,64$$

$$= 14,25 \text{ W}$$



$$R_t : 3\Omega$$

$$I_t : 3A \rightarrow \frac{V}{R_1 + R_p} = \frac{9}{2+1}$$

$$V_{Rp} : I \cdot R_p = 3 \cdot 1 = 3V$$

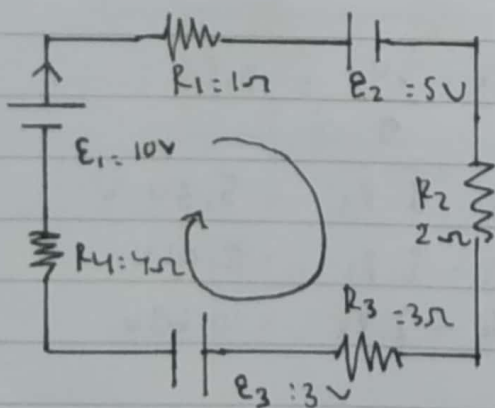
$$V_{R2} : I \cdot R_p = 3 \cdot 1 = 3V$$

$$V_{R3} : I \cdot R_p = 3 \cdot 1 = 3V$$

$$V_{R1} : I \cdot R_p = 3 \cdot 1 = 6V$$

### > Hukum Kirchhoff dua loop

- arus bergerak dari potensial tinggi ke rendah



$$E_1 > E_2 > E_3$$

1. Gambar arah arus sesuai dgn besarnya  $\mathcal{E}$
2. Gambar loop sesuka hati
3. jika arah arus searah dgn arah loop maka  $\oplus$ .

$$\sum \mathcal{E} + \sum IR = 0$$

$$-E_1 + E_2 + E_3 + [I(R_1 + R_2 + R_3 + R_4)] = 0$$

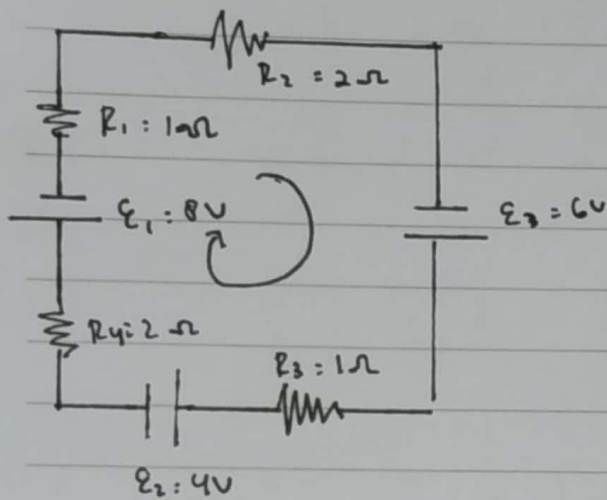
$$= -10 + 5 + 3 + I(1 + 2 + 3 + 4) = 0$$

$$= -2 + I(10) = 0$$

$$I(10) = 2$$

$$I = \frac{2}{10}$$

$$I = 0,2 \text{ A}$$



$$\sum \mathcal{E} + \sum I \cdot R = 0$$

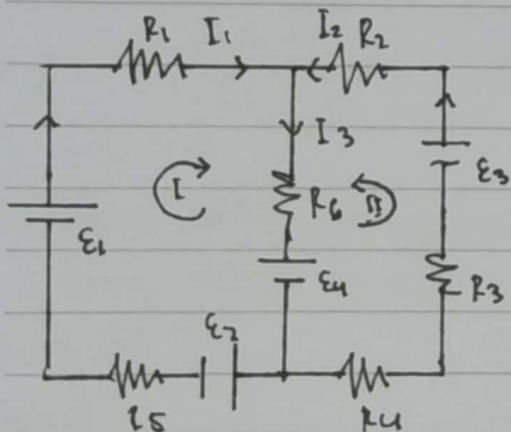
$$\mathcal{E}_1 + \mathcal{E}_2 - \mathcal{E}_3 - I(R_1 + R_2 + R_3 + R_4) = 0$$

$$8 + 4 - 6 - I(1 + 2 + 1 + 2) = 0$$

$$6 - I(6) = 0$$

$$I = \frac{6}{6}$$

$$= 1 \text{ A}$$



loop I

$$\sum \mathcal{E} + \sum I \cdot R = 0$$

$$-\mathcal{E}_1 + \mathcal{E}_4 + \mathcal{E}_2 + I_1(R_1 + R_5) + I_3 R_6 = 0$$

loop II

$$\sum \mathcal{E} + \sum I \cdot R = 0$$

$$-\mathcal{E}_3 + \mathcal{E}_4 + I_2(R_2 + R_3 + R_4) + I_3 R_6 = 0$$