

Senin, 29 April 2024

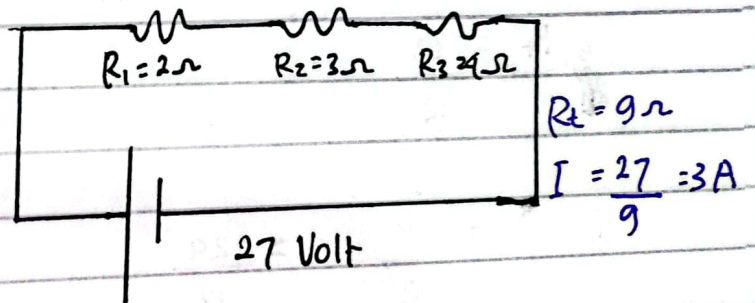
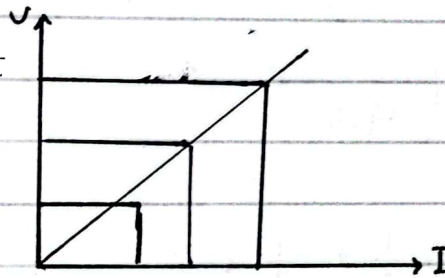
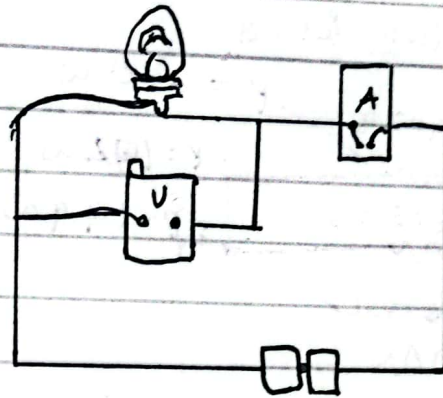
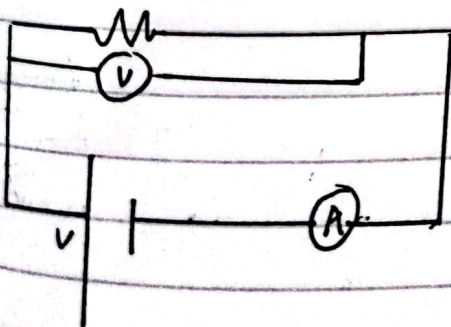
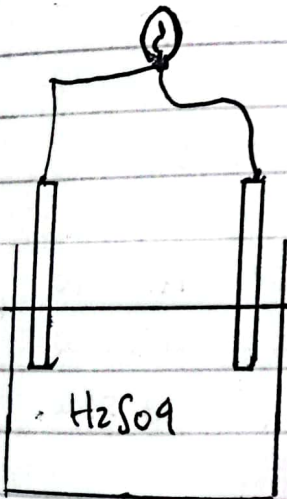
ELEKTRODINAMIKA

① Hukum Ohm

$$J = \sigma E$$

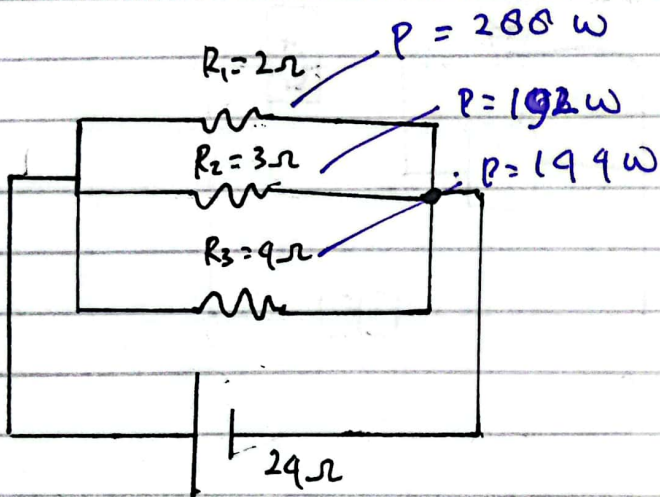
DC
AC

$$V = IR$$



⇒ Parallel

⇒ Rangkaian Paralel



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

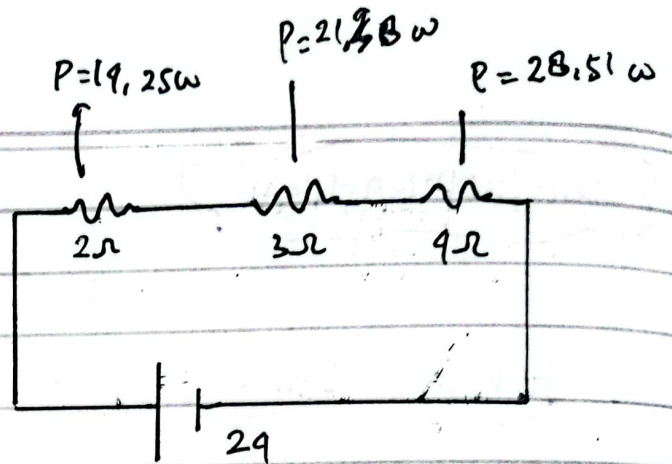
$$\frac{1}{R_t} = \frac{6}{12} + \frac{4}{12} + \frac{3}{12} = \frac{13}{12}$$

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

$$I = \frac{V}{R} = \frac{24}{\frac{12}{13}}$$

$$= 26A$$

$$P = \frac{V}{I} \Rightarrow P_{\text{diss}}$$



$$I = 2.67A$$

$$I = \frac{24}{9} = 2.67A$$

$$V_1 = 2.67 \times 2 = 5.34$$

$$V_2 = 2.67 \times 3 = 8.01$$

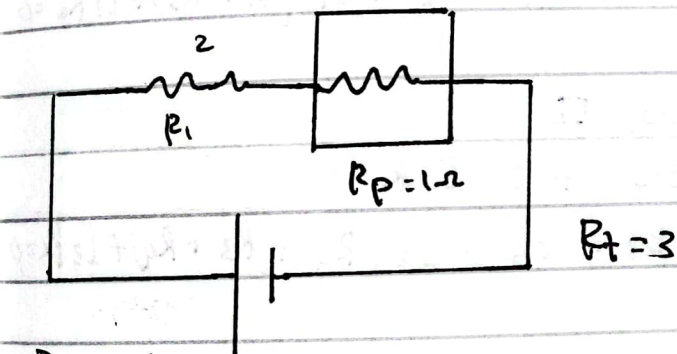
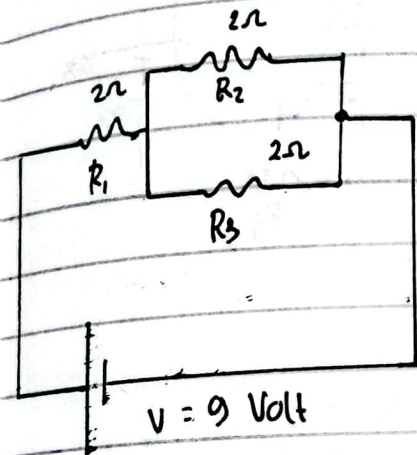
$$V_3 = 2.67 \times 4 = 10.68$$

$$P_1 = 5.34 \times 2.67 = 14.25W$$

$$P_2 = 8.01 \times 2.67 = 21.38W$$

$$P_3 = 10.68 \times 2.67 = 28.51W$$

= campuran seri dan paralel



Pembahasan :

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

$$R_p = 1 \Omega$$

$$R_1 = 2 \Omega$$

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

$$I = \frac{V}{R} = \frac{9}{3} = 3 \text{ A}$$

$$V_{Rp} = 3 \cdot 1 = 3 \text{ Volt}$$

$$V_{R2} = 3 \text{ Volt}$$

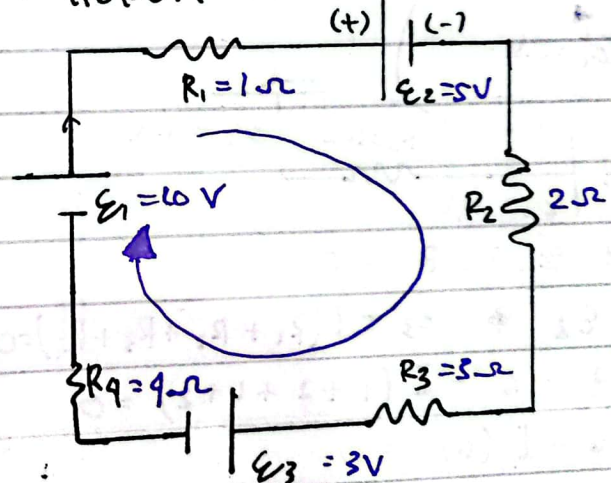
$$V_{R3} = 3 \text{ Volt}$$

$$I_1 = \frac{3}{2} = 1.5 \text{ A}$$

$$I_2 = \frac{3}{1} = 3 \text{ A}$$

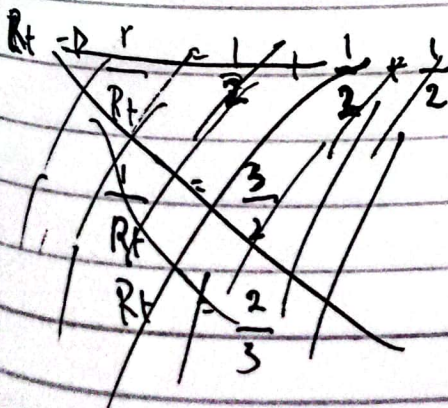
$$I_3 = \frac{3}{1} = 3 \text{ A}$$

↳ HUKUM KIRCHOFF



$$E_1 > E_2 > E_3$$

1. Gambar arah arus
2. gambar loop sesuai hati
3. jika arah arus searah dengan arah loop. maka +



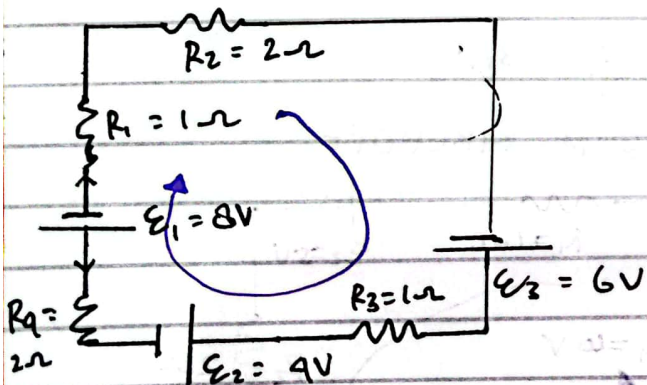
$$\sum \mathcal{E} + \sum i \cdot R = 0$$

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

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

$$I = \frac{1}{5}$$

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



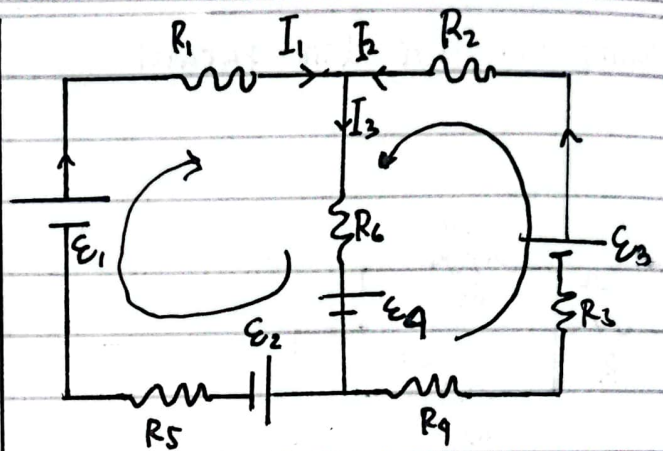
$$\sum \mathcal{E} + \sum i \cdot R = 0$$

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

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

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

$$I = \frac{6}{6} = 1 \text{ A}$$



Loop I

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

$$-E_1 + E_4 + E_2 + I_1(R_1 + R_5) + I_3 R_6 = 0$$

Loop II

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

$$-E_3 + E_4 + I_2(R_2 + R_3 + R_4) + I_3 R_6 = 0$$