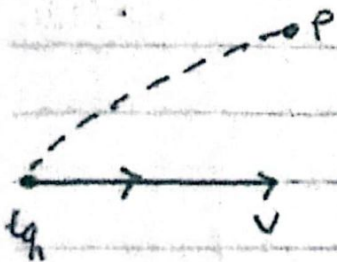


"Medan Magnet"

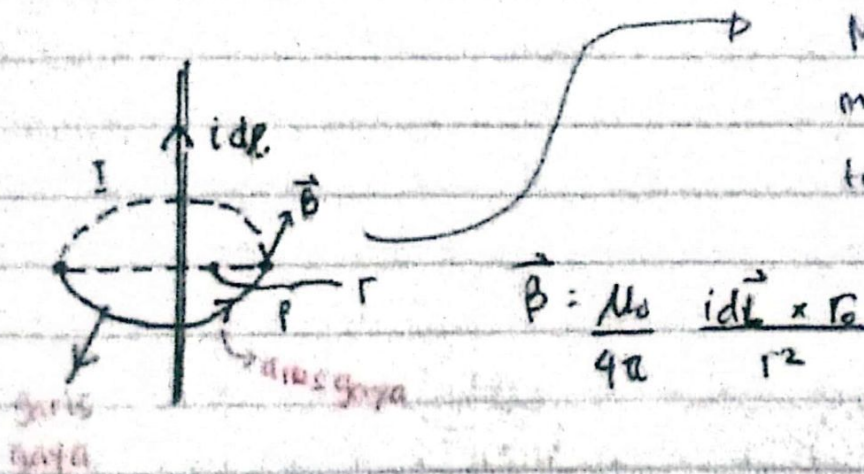
Medan magnet adalah suatu medan yang dibentuk dengan menggerakkan muatan listrik yang menyebabkan munculnya gaya dimuatan listrik yang bergerak lainnya.

1) MEDAN OLEH MUATAN BERGERAK

$$B = \frac{\mu_0}{4\pi} \frac{q \cdot v \cdot \hat{h}}{r^2}$$
$$= \frac{\mu_0 \cdot q \cdot v}{4\pi r^2} \sin \theta$$

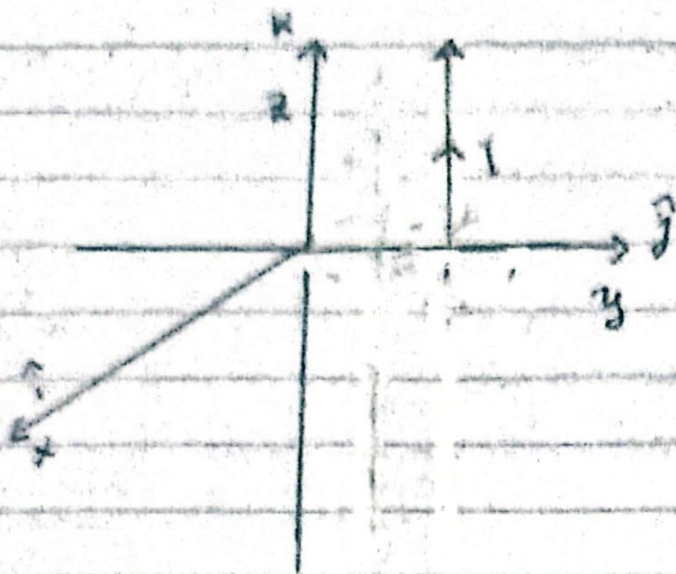


2) $\vec{B}$ oleh arus listrik



Medan tsb terorientasi menurut aturan tangan kanan

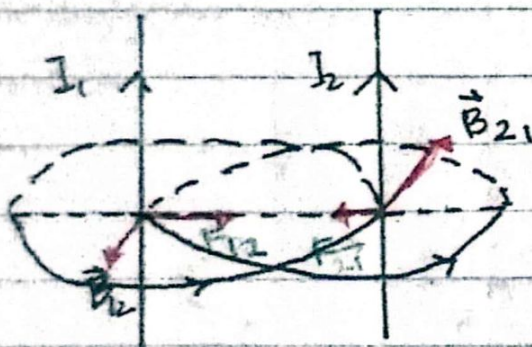
$$\vec{B} = \frac{\mu_0}{4\pi} \frac{I d\vec{l} \times \vec{r}}{r^2}$$



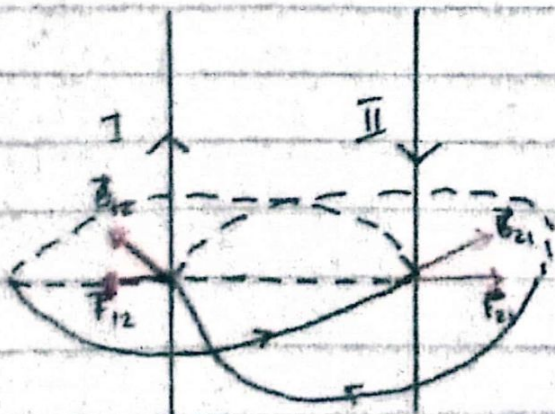
$$\vec{B} = \frac{\mu_0}{4\pi} \frac{Id\vec{L} \times \vec{r}}{r^3}$$

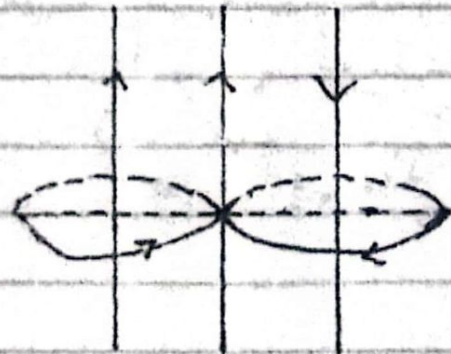
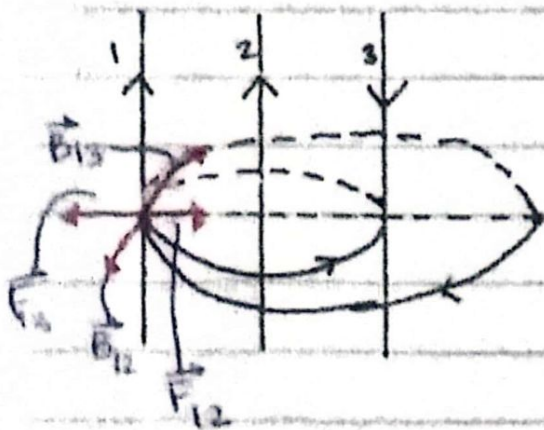
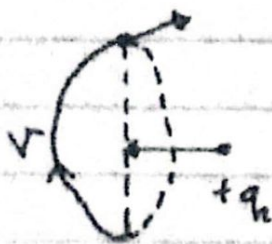
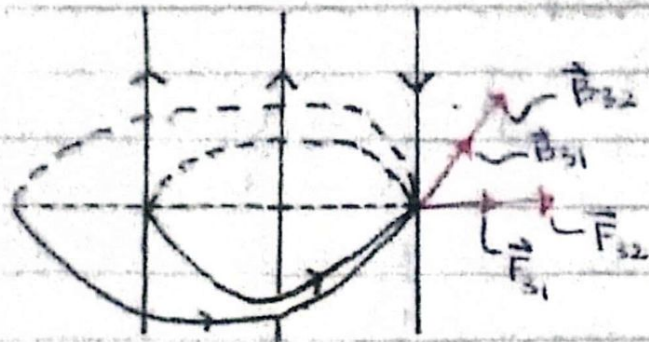
$$= \frac{\mu_0}{4\pi} \cdot \frac{Id\theta}{r^2} \sin\theta (-\hat{j})$$

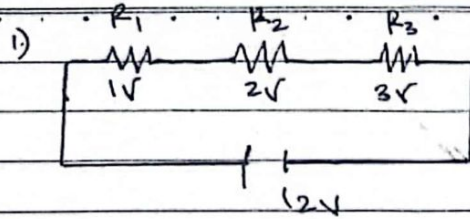
Untuk dua arus



$$F = Id\vec{L} \cdot \vec{B}$$







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a) Hitung arus pada R_3 b) Hitung tegangan pada R_2

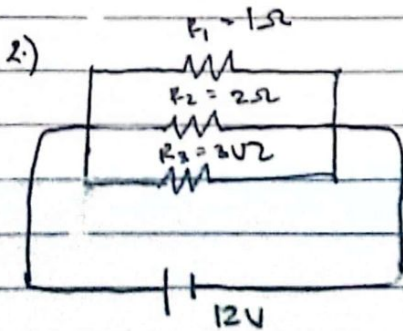
Jawab :

$$a) I_{R_3} = \frac{V}{R_3} = \frac{12}{6} = 2A \quad \checkmark$$

$$b) V_{R_2} = \frac{V}{R_2} = \frac{12}{3} = 6A \quad \times$$

$$V = I \cdot R_2$$

$$= 6 \cdot 2 = 12V$$



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a) Hitung arus pada R_3 b) Hitung tegangan pada R_2

$$\text{Jawab a) } I_{R_3} = \frac{V}{R_3} \quad \checkmark$$

$$= \frac{12}{3}$$

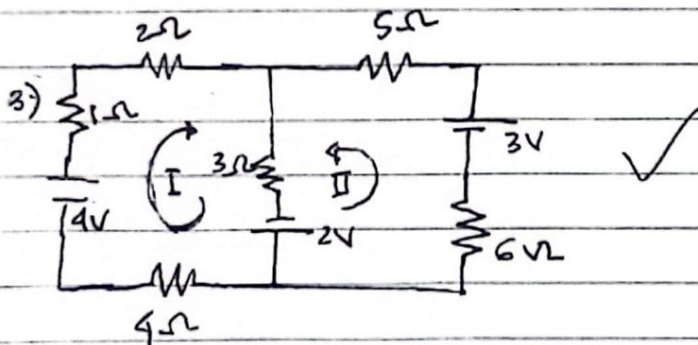
$$= 4A$$

$$b) I_2 = \frac{12}{2} = 6A \quad \checkmark$$

$$V_2 = 6 \times 2 = 12V$$

$$b.) \frac{V}{R_2} = \frac{12}{2} = 6A$$

$$V = I \cdot R_2 = 6 \cdot 2 = 12V$$



Hitung arus tiap loop (I_1, I_2, I_3)

Loop I

$$\sum E + \sum I \cdot R = 0$$

$$-4 - 2 + 7I_1 + 3I_2 = 0$$

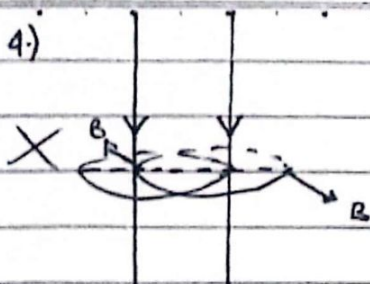
$$-6 + 7I_1 + 3I_3 = 0$$

Loop II

$$-2 - 3 + 11I_2 + 3I_3 = 0$$

$$-5 + 11I_2 + 3I_3 = 0$$

4.)



Gambarkan garis gaya, medan magnet, dan gaya.