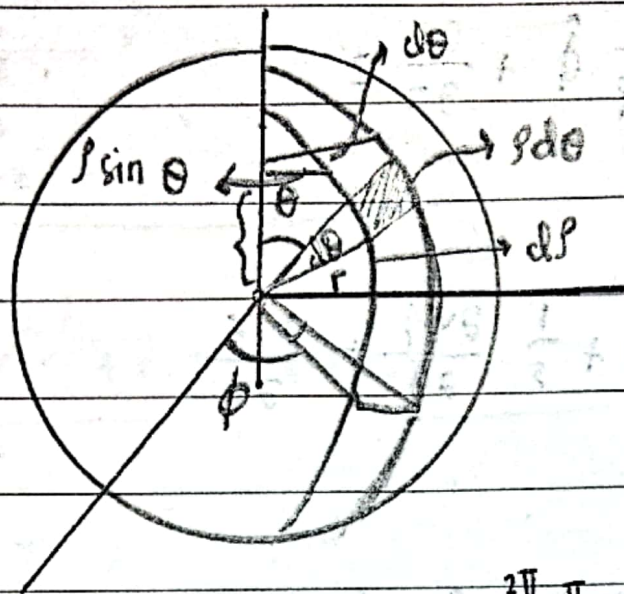


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Date: 4-03-2024

Kaliisma



$$A: P \times L$$

$$= P d\theta \cdot P \sin \theta d\phi$$

$$= P^2 \sin \theta d\theta d\phi$$

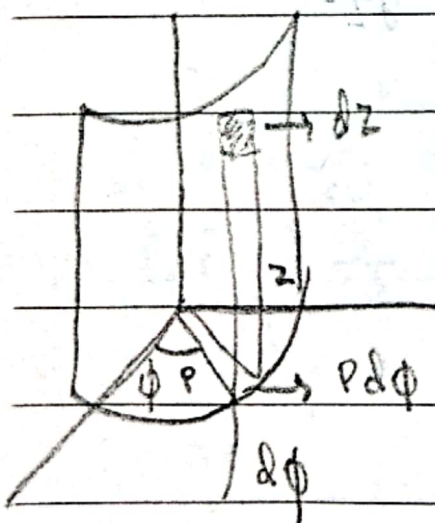
$$V = P^2 \sin \theta d\theta d\phi dr$$

$$A: \int_0^{2\pi} \int_0^\pi P^2 \sin \theta d\theta d\phi = 4\pi P^2$$

$$A: P^2 \int_0^{2\pi} d\phi \int_0^\pi \sin \theta d\theta = 4\pi P^2$$

$$V = \int_0^r \int_0^{2\pi} \int_0^\pi P^2 \sin \theta d\theta d\phi dr$$

$$= \frac{1}{3} \pi r$$

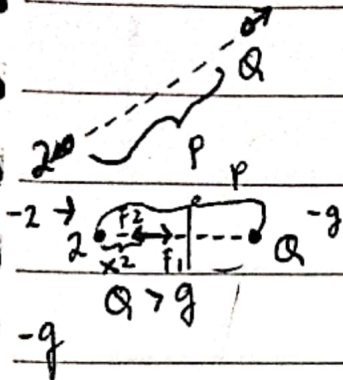


$$A: P d\phi dz$$

$$V: P d\phi dz dr$$

$$\frac{1}{2} + \frac{1}{3} = \frac{3+2}{6} = \frac{5}{6}$$

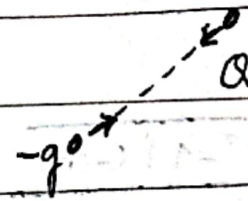
Listrik Statis



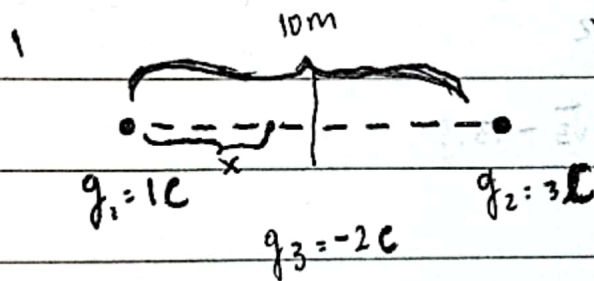
$$\vec{F} = \frac{1}{4\pi\epsilon_0} \cdot \frac{qQ}{r^2} \hat{r}_0$$

$$\vec{F}_1 = \vec{F}_2$$

$$K \frac{qQ}{(l-x)^2} = K \frac{qQ}{x^2}$$



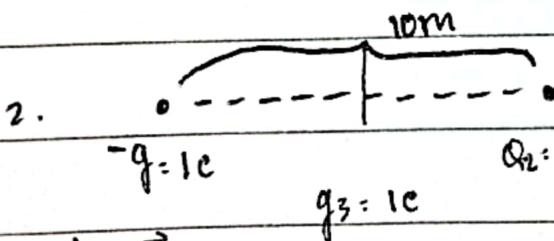
Contoh soal:



mencari x : $\vec{F}_1 = \vec{F}_2$

$$K \frac{1 \cdot 2}{x^2} = K \frac{2 \cdot 3}{(10-x)^2} \rightarrow K \frac{2}{x^2} = K \frac{6}{(10-x)^2}$$

$$\frac{1}{x^2} = \frac{3}{(10-x)^2}$$



$$\vec{F}_1 = \vec{F}_2$$

$$K \frac{1 \cdot 2}{x^2} = K \frac{2 \cdot 3}{(10-x)^2}$$

$$\frac{1}{x^2} = \frac{3}{(10-x)^2}$$

$$(10-x)^2 = 3x^2 \rightarrow (x+15)(x-5) = 0$$

$$100 - 20x + x^2 = 3x^2$$

$$2x^2 + 20x - 100 = 0$$

$$x^2 + 10x - 50 = 0$$

No. Date:

$$\frac{-3 \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{10 \pm \sqrt{(0)^2 - 4 \cdot 1 \cdot (-50)}}{2 \cdot 1}$$

$$\frac{-10 \pm \sqrt{100 + 200}}{2}$$

$$\frac{-10 + \sqrt{300}}{2}$$

$$\frac{10\sqrt{3} - 10}{2}$$

$$5. -5$$

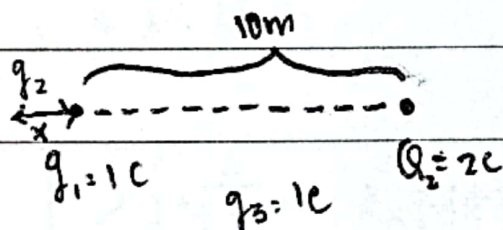
$$\frac{-10 \pm 13.00}{2}$$

$$\frac{-10 + 10\sqrt{3}}{2}$$

$$\frac{-10 - 10\sqrt{3}}{2}$$

$$\frac{-10 - 10\sqrt{3}}{2}$$

$$-5 - 5\sqrt{3} - 13.5$$



$$\vec{F}_1 = \vec{F}_2$$

$$\cancel{k} \frac{q_1 q_2}{x^2} = \cancel{k} \frac{q_3 q_2}{(10+x)^2}$$

$$\frac{1}{x^2} = \frac{2}{(10+x)^2}$$

$$2x^2 = (10+x)^2$$

$$2x^2 = 100 + x^2 + 20x$$

$$2x^2 - 20x - 100 = 0 \rightarrow x^2 - 20x - 100 = 0$$

NOTEBOOK

No. Date:

$$F_{13} = K \frac{q_1 q_3}{r^2} (-\hat{j})$$

$$\frac{(0\hat{i} - 3\hat{j})}{\sqrt{0^2 + 3^2}}$$

$$F_{12} = K \frac{q_1 q_2}{r^2} \left(-\frac{4\hat{i} + 3\hat{j}}{5} \right) \sqrt{3^2 + 4^2}$$

$\xrightarrow{\text{ } r^2 \text{ dari}}$

~~$$\frac{(0\hat{i} - 3\hat{j})}{\sqrt{0^2 + 3^2}}$$~~