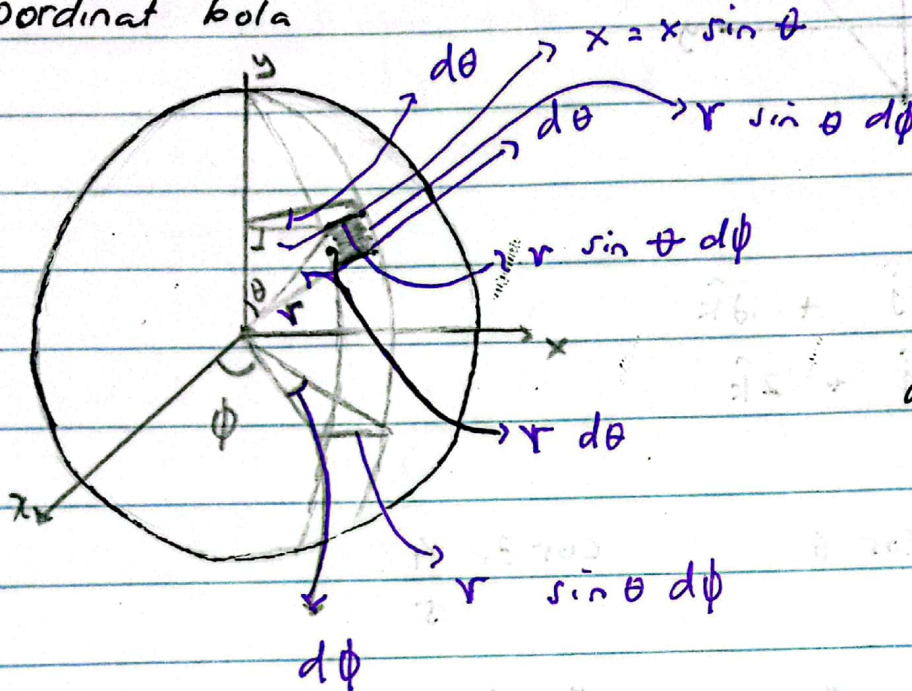


Nama : Rain Rizky Marifza
NPM : 2213022063 (22B)

Date 29-02-2024

Sistem Koordinat

→ Koordinat bola



$$\sin = \frac{x}{r}$$

$$x = r \sin \theta$$

panjang lebar

$$da = dp \times dl$$

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

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

$$dV = dp \cdot dl \cdot d\theta$$

$$= r^2 \sin \theta d\theta d\phi dp$$

$$\nabla T = \hat{i} \frac{\partial T}{\partial x} + \hat{j} \frac{\partial T}{\partial y} + \hat{k} \frac{\partial T}{\partial z}$$

$$\nabla T = \frac{\partial T}{\partial r} \hat{r} + \frac{1}{r} \frac{\partial T}{\partial \theta} \hat{\theta} + \frac{1}{r \sin \theta} \frac{\partial T}{\partial \phi} \hat{\phi}$$

$$\nabla T = \dots$$

$$\nabla \times T = \dots$$

$$A = \int_0^{2\pi} \int_0^{\pi} r^2 \sin \theta \, d\theta \, d\phi$$

$$= r^2 \int_0^{2\pi} d\phi \int_0^{\pi} \sin \theta \, d\theta$$

$$= 2\pi r^2 \int_0^{\pi} \sin \theta \, d\theta$$

$$= \left[-\cos \theta \right]_0^{\pi} = 4\pi r^2$$

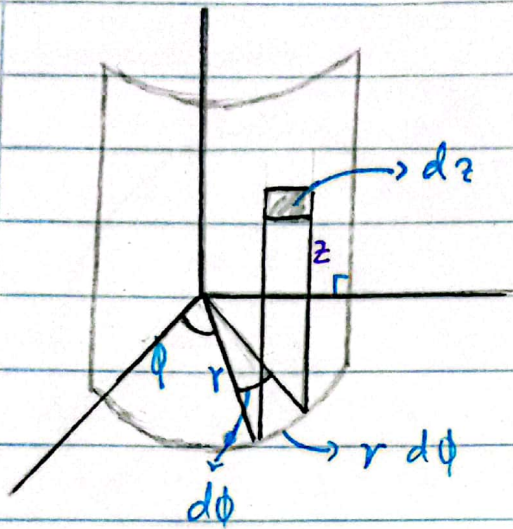
$$V = \int_0^{\pi} \int_0^{2\pi} \int_0^r r^2 \sin \theta \, d\theta \, d\phi \, dr$$

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

$$= 2(2\pi) \int_0^r r^2 \, dr$$

$$= 4\pi \left(\frac{1}{3} r^3 \right) = \frac{4}{3} \pi r^3$$

Koordinat Silinder



elemen panjang lebar

$$dA = dr \times dl$$

$$= r d\phi \cdot dz$$

$$dV = r d\phi \cdot dz \cdot dr$$

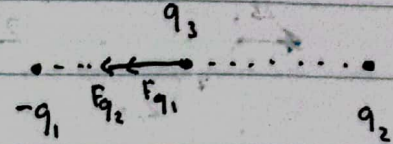
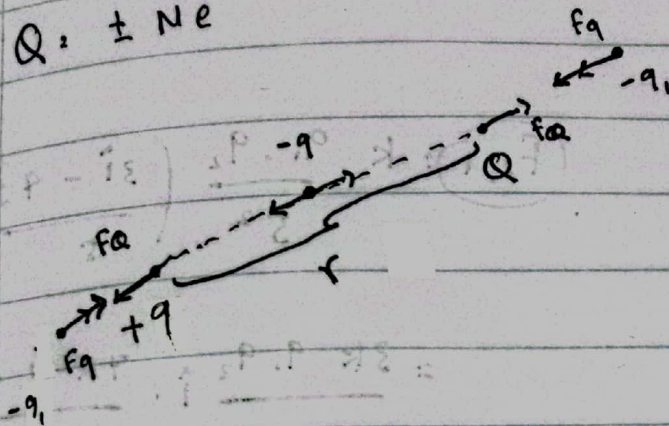
- Listrik statis → Jarak Listrik statis : Foto Copy, Penangkilan petir
- Gaya columb
- Medan listrik
 - Diskrit
 - non diskrit
- Potential
 - Diskrit
 - non Diskrit
- usaha dan Energi

columb
Gausiar (Gauss)
statis

atom + q^- = kekurangan elektron

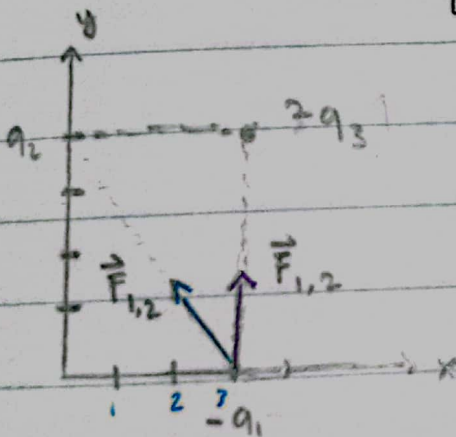
+ - = tarik
+ + = tolak - menolak

$$Q = \pm N e$$



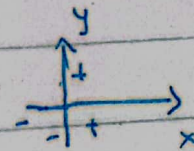
$$q = \frac{f}{M}$$

$$k = \frac{1}{4\pi\epsilon}$$



$$\vec{F}_{q_1} = \vec{F}_{1,2} = k \frac{q_1 (2q_3)}{4^2} \hat{j}$$

$$r_0 = \frac{\vec{r}}{|\vec{r}|}$$



$$\vec{F}_{1,2} = k \frac{q_1 q_2}{5^2} \cdot (-3\hat{i} + 4\hat{j})$$

← ke arah kiri

$$\vec{F}_{1,2} = \frac{-3k q_1 q_2}{125} \hat{i} + \frac{4k q_1 q_2}{125} \hat{j}$$

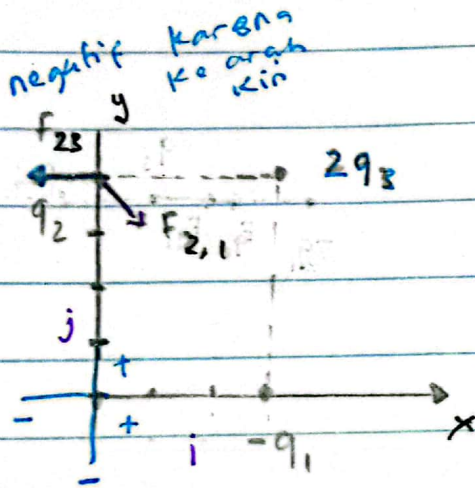
$$\vec{F}_{\text{total}} = \frac{-3k q_1 q_2}{125} \hat{i} + \left(\frac{2k q_1 q_3}{16} + \frac{4k q_1 q_2}{125} \right) \hat{j}$$

Rai Rizky Mariz

2213022063

$$\vec{F}_{\text{total}} = kq_1 \left[\frac{3q_2}{125} \hat{i} + \left(\frac{2q_3}{16} + \frac{4q_2}{125} \right) \hat{j} \right]$$

$$|\vec{F}| = kq_1 \sqrt{0^2 + \square^2}$$



$$F_{2,1} = k \frac{q_1 \cdot q_2}{5^2} \left(\frac{3\hat{i} - 4\hat{j}}{5} \right)$$

$$= \frac{3k q_1 q_2}{125} \hat{i} - \frac{4k q_1 q_2}{125} \hat{j}$$

$$F_{23} = -k \frac{q_2 q_3}{3^2}$$

$$= -2k \frac{q_2 q_3}{9}$$