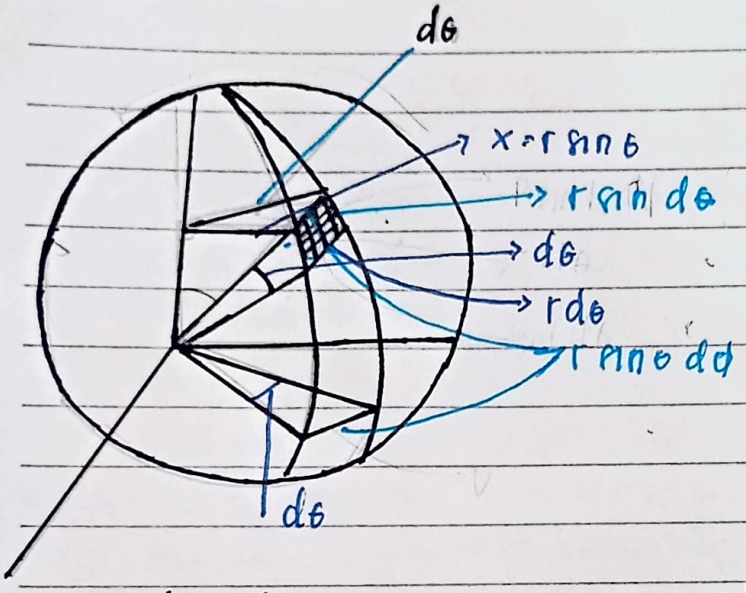
Nama: Dini Rismawati
NPM : 2213022043

No.

Date

Sistem Koordinat



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

$x = r\sin\theta$

$da = dp \times dl$

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

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

$dG = dp \cdot dl \cdot dl$

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

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

$\nabla T = \frac{\partial T}{\partial r}\hat{r}_0 + \frac{1}{r}\frac{\partial T}{\partial \theta}\hat{\theta}_0 + \frac{1}{r\sin\theta}\cdot\frac{\partial T}{\partial \phi}\hat{\phi}_0$

$\nabla \cdot T = \dots$

$\nabla \times T = \dots$

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

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

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

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

No.

Date . .

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

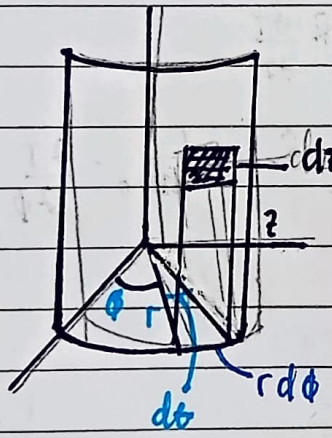
$$= \int_0^{\pi} \sin\theta \, d\theta \int_0^{2\pi} d\phi \int_0^{r} r^2 \, dr$$

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

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

$$= \frac{4}{3}\pi r^3$$

Koordinat silinder



$$dA = dp \times dl$$
$$= r\,d\phi \cdot dz$$

$$dG = dp \times dl \times dr$$
$$= r\,d\phi \cdot dz \cdot dr$$

Listrik Statis

→ Gaya coulumb

→ Medan listrik
- Diskrit
- Non diskrit ← Couloumb, Ganesis, Statis

→ Potensial
- Diskrit
- Non diskrit

→ Usaha & energi

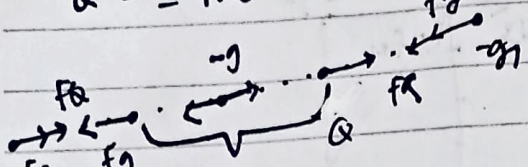
No.

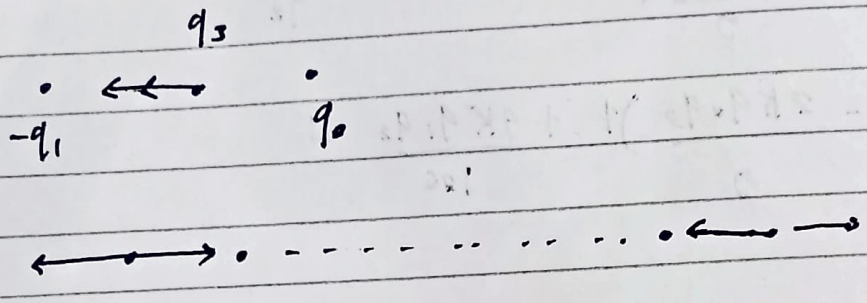
Date . .

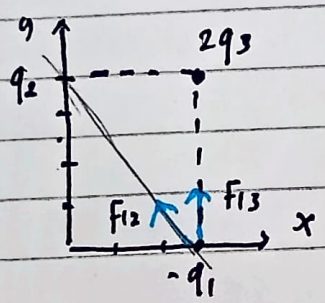
$Q = \pm N\bar{e}$

$a = \frac{f}{m}$

$F = \frac{1}{4\pi} \frac{qQ}{r^2} r^n$







$K = \frac{1}{4\pi\varepsilon_0}$

$\vec{F}_{q_1} =$

$\vec{f}_{13} = k \frac{q_1(2q_3)}{q^2} j$

$\vec{f}_{12} = k \frac{q q_2}{5^2} \frac{(-3i + 4j)}{5}$

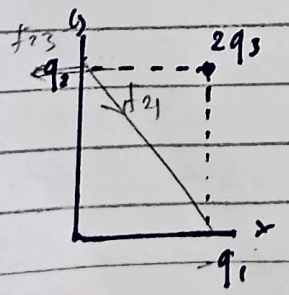
$\sqrt{3^2 + 4^2} = 5$

$\hat{r}_0 = \frac{\vec{r}}{|r|}$

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

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

Menjabarkan



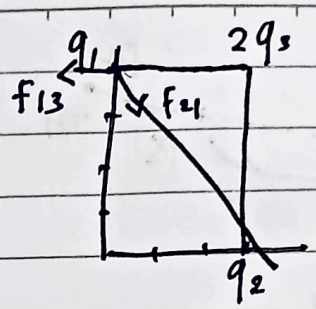
$\vec{F}_{12} = -\frac{3kq_1q_2}{125} i + \frac{4kq_1q_2}{125} j$

$f_{total} = -\frac{3kq_1q_2}{125} i + \left(\frac{2kq_1q_2}{16} + \frac{4kq_1q_2}{125} \right) j$

No.

Date

Gaya yg bekerja pada q_2



$\vec{F_{21}} = K\frac{(q_2 \cdot q_1)}{5^2}$ $(-3\uparrow + \ldots J)$

$\vec{F_{23}} = -K\frac{q_2 2q_3}{3^2}\uparrow = -2K\frac{q_2 q_3}{9}\cdot\uparrow$

$F_{total}\left(-\frac{3Kq_2 \cdot q_1}{125} - \frac{2Kq_2 q_3}{9}\right)\uparrow \; 1\frac{9Kq_1 q_2}{125}\; J$