No.

Date 25 . 03 . 2024

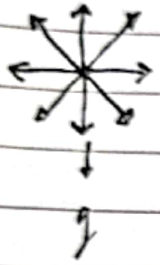
Hukum Gauss

$\Delta V \neq dv$

$$\oint_s \vec{E}\, da = \int_v (\nabla \cdot \vec{E})\, d\cdot G$$

$$\oint \vec{E}\, d\vec{a} = \oint \frac{q}{4\pi G r^2} r^2 \sin\theta\, d\theta\, d\phi$$

$$= \frac{q}{4\pi G_0} \int_0^{\pi} \int_0^{2\pi} \sin\theta\, d\theta\, d\phi$$



$$= \frac{q(2\pi)}{4\pi G_0} \int_0^{\pi} \sin\theta\, d\theta$$

$$= \frac{4\pi q}{4\pi G_0}$$

$$\oint \vec{E} d\vec{a} = \frac{q}{G_0}$$

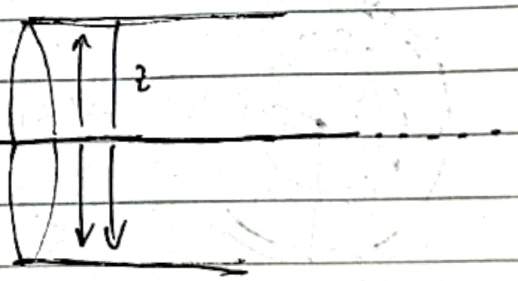
$$\int_v (\nabla \cdot \vec{E})\, dG.$$

$$Q_{ruang} = \rho\, dG = \sigma\, da = \lambda\, dp$$

$$\iiint \nabla \cdot E \cdot dG = \iiint \frac{\rho\, dG}{G}$$

$$\nabla \cdot \vec{E} = \frac{\rho}{E_0}$$

Contoh.



Permukaan gauss

$$\oint \vec{E} \cdot da = \frac{q}{E_0} \quad \lambda \cdot L$$

$$E(2\pi\rho \cdot \ell) = \frac{\lambda L}{G}$$

$$\oint \vec{E} da = \frac{\lambda L}{E_0}$$

$$\vec{E} = \frac{\lambda}{2\pi G \rho} \hat{\rho}$$

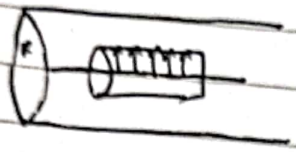
Dipindai dengan CamScanner

No

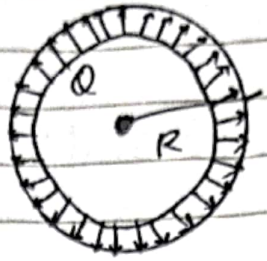
Date

Hukum Gauss

$$\oint \vec{E} \cdot da = \frac{q}{\varepsilon_0}$$



$$\vec{E} = \frac{Q}{4\pi\varepsilon_0 \rho^2}\,\hat{\rho}_0$$



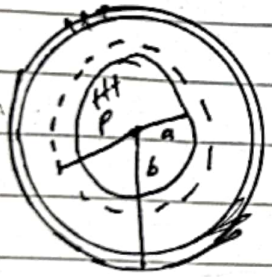
Hitung E pada

a). $\rho < R$

b). $\rho > R$

$$\oint \vec{E} \cdot da = \frac{Q r_0}{\varepsilon_0}$$

$$\vec{E}(4\pi\rho^2) = \frac{Q_{ie}}{\varepsilon}$$



$\rho < a \rightarrow \vec{E} = 0$

$a < \rho < b$

$$\oint \vec{E} \cdot da = \frac{Q'}{\varepsilon_0}$$

$$E(4\pi\rho^2) = \frac{1}{\varepsilon_0} \iiint \rho\, dq$$

$$= \frac{1}{\varepsilon_0} \int_0^a \int_0^{\pi} \int_0^{2\pi} \rho^2 \sin\theta \, d\theta \, d\phi \, d\hat{\rho}$$

$$= \frac{4\pi}{\varepsilon_0} \int_0^a \rho^2 \, d\rho$$

Dipindai dengan CamScanner