

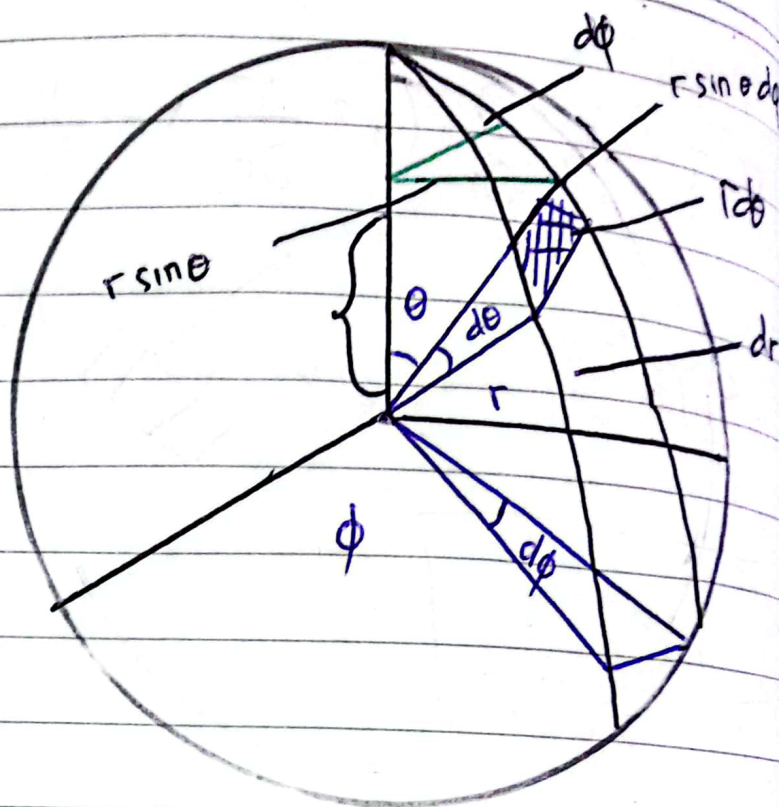
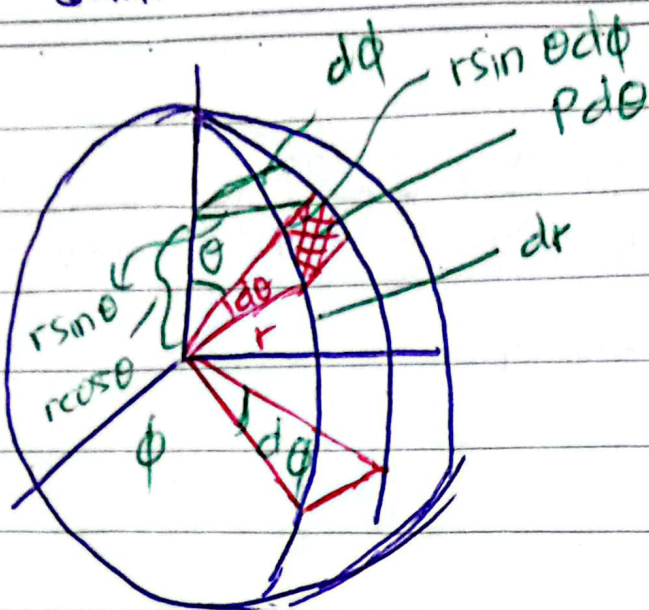
4/24
3

Senin

ParkWadi2

No.

Date :



$$A = p \times l$$

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

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

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

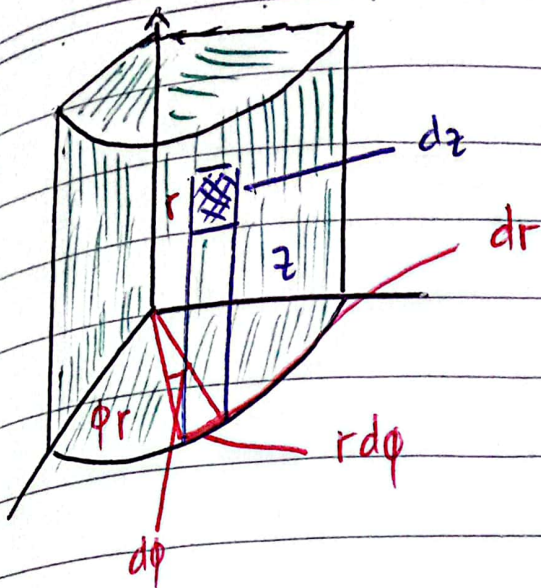
$$A = \int_0^r \int_0^{2\pi} \int_0^\pi r^2 \sin \theta d\theta d\phi = 4\pi r^2$$

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

$$= 4\pi r^2$$

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

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



$$A = r d\phi dz$$

$$V = r d\phi dz dr$$

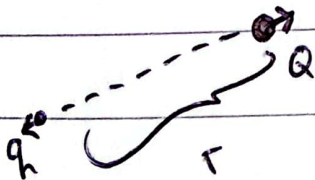
Listrik Statis

LISTRIK STATIS

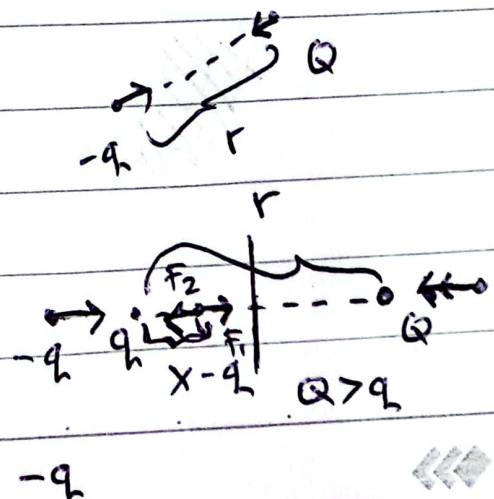
contoh : petir (kelebihan ^{muatan} ~~material~~)

muatan yg bergerak terhadap waktu (elektrodinamika)

$$q = \pm Ne$$



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



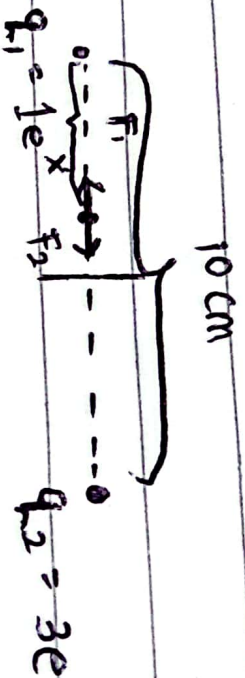
permitivitas

PAPERLINE

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

$$k \frac{q_1 q_2}{(r-x)^2} = k \frac{q_1 q_2}{x^2}$$

contoh :



$$q_3 = -2e$$

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

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

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

$$(10-x)^2 = 3x^2$$

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

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

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

$$(x+15)(x-5) = 0$$

$$x = -15$$

$$x = 5$$

No.

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

2a

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

2 \cdot 1

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

2

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

2

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

2

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

2

$$-5 + 5 \cdot 1,7$$

~~5 + 5 \cdot 1,7~~

$$= 3,5$$

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

2

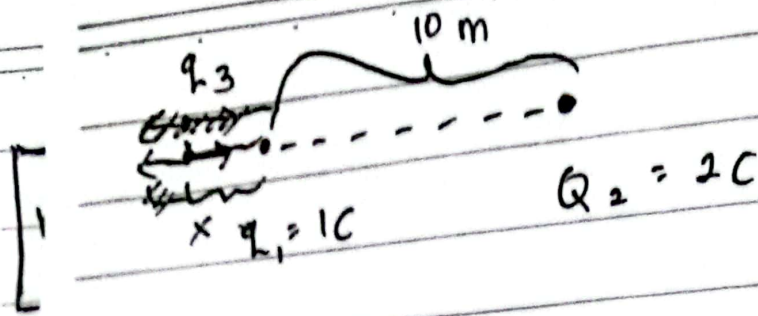
$$\frac{-10 - 10\sqrt{3}}{2}$$

2

$$-5 - 5 \cdot 1,7$$

~~-5 - 5 \cdot 1,7~~

$$= 13,5$$



$$q_3 = 1\text{C}$$

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

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

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

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

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

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

$$x = -5 \quad x = 20$$

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

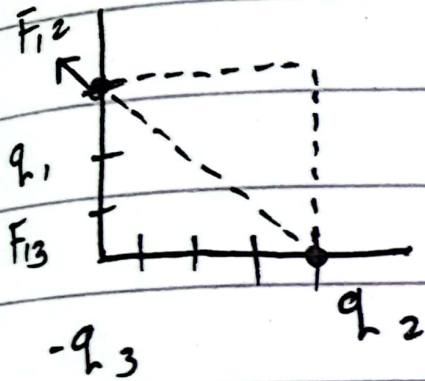
$$a = 1, b = -20, c = -100$$

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

$$= \frac{-(-20) \pm \sqrt{(-20)^2 - 4 \cdot 1 \cdot (-100)}}{2 \cdot 1}$$

$$= \frac{20 \pm \sqrt{400 + 400}}{2}$$

$$= \frac{20 \pm \sqrt{800}}{2}$$



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

$$\vec{F}_{13} = k \frac{q_1 q_3}{3^2} (-\hat{j})$$

$$\vec{F}_{12} = k \frac{q_1 q_2}{5^2} \left(-\frac{4\hat{i}}{5} + \frac{3\hat{j}}{5} \right)$$

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