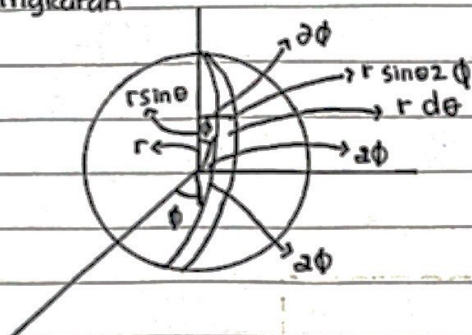


Mutia Azizah

2213022069

Kalisma

Sk. Lingkaran



$$dA = dr \times d\theta$$

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

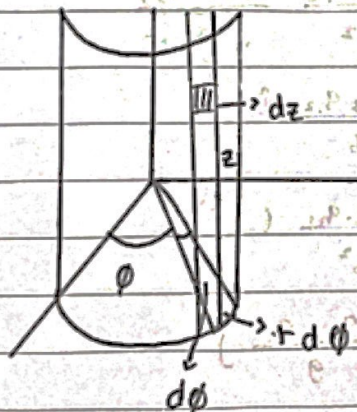
$$= r^2 \sin \theta \cdot d\theta \cdot d\phi$$

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

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

$$r = \iiint r^2 \sin \theta \cdot d\theta \cdot d\phi \cdot dr$$

Sk. Tabung



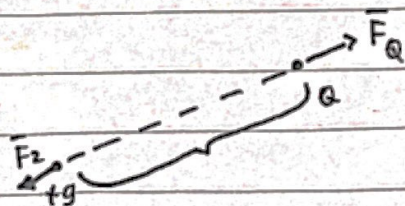
$$A = r \cdot d\theta \cdot dz$$

$$r = r \cdot d\theta \cdot dz \cdot dr$$

Gaya Listrik

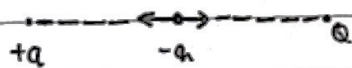
* Muatan Listrik

$Q = \pm Ne$ akan melepas elektron / yang kekurangan elektron



$$\vec{F}_g - \vec{F}_Q = \vec{F} = \frac{1}{4\pi\epsilon_0} \frac{qQ}{r^2} \frac{\vec{r}_0}{|\vec{r}_0|} = \vec{F}$$

gaya yg dikeluarkan sama, besarnya yang berbeda.

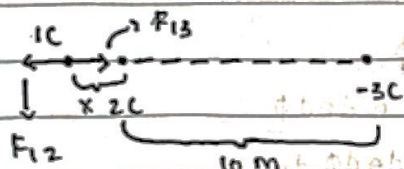


$$F_{1q} = F_{1Q}$$

$$\frac{kq_1 Q}{(r-x)^2} = \frac{kq_1 q_2}{(x^2)}$$

$$\frac{Q}{(r^2 - 2rx + x^2)} = \frac{q_2}{x^2}$$

$$Qx^2 = q_2 (r^2 - 2rx + x^2)$$



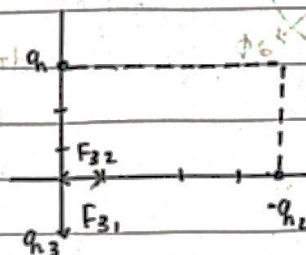
$$\vec{F}_{12} = \vec{F}_{13}$$

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

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

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

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



$$\vec{F}_{32} = k \frac{q_3 q_2}{4^2} \frac{(3\hat{i} + 0\hat{j})}{\sqrt{3^2 + 0^2}}$$

$$= k \frac{q_3 q_2}{16} \hat{i}$$

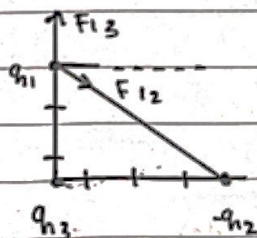
$$\vec{F}_{31} = k \frac{q_3 q_1}{3^2} (-\hat{j})$$

$$= -k \frac{q_3 q_1}{9} \hat{j}$$

$$\textcircled{1} \cdot |\vec{F}| = \sqrt{k \frac{q_3 q_2}{16} \hat{i} + -k \frac{q_3 q_1}{9} \hat{j}}$$

$$\vec{F} = kq_3 \left[\frac{q_2}{16} \hat{i} - \frac{q_1}{9} \hat{j} \right]$$

$$\textcircled{2} \cdot |\vec{F}| = kq_3 \sqrt{\left(\frac{q_2}{16}\right)^2 + \left(\frac{q_1}{9}\right)^2}$$

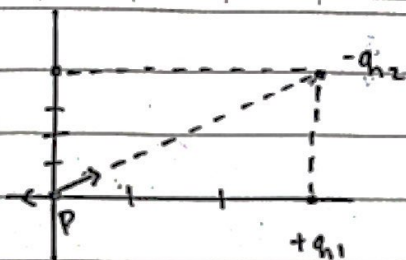
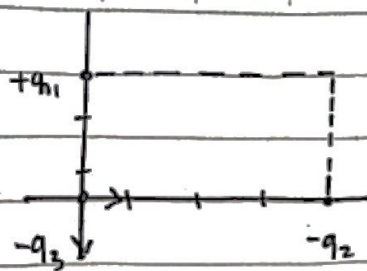


$$\vec{F}_{13} = k \frac{q_1 q_3}{3^2} \hat{j}$$

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

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

$$\vec{F} = kq_1 \left[\left(\frac{4q_2}{125}\right) \hat{i} + \left(\frac{q_3}{9} - \frac{3q_2}{125}\right) \hat{j} \right]$$



$$\vec{E}_{q3} = \frac{F_{32}}{q_3} = \frac{k q_1 q_2 / r^2}{q_3}$$

$$F = k \frac{q_2}{r^2} \hat{r}_0$$

$$\vec{E}_1 = k \frac{q_1}{3^2} (-\hat{i})$$

$$= -k \frac{q_1}{9} \hat{i}$$

$$\vec{E}_2 = k \frac{q_2}{5^2} \left(\frac{3\hat{i} + 4\hat{j}}{5} \right)$$

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

$$\vec{E} = k \left[\left(3 \frac{q_2}{125} - \frac{q_1}{9} \right) \hat{i} + 4 \frac{q_2}{125} \hat{j} \right]$$