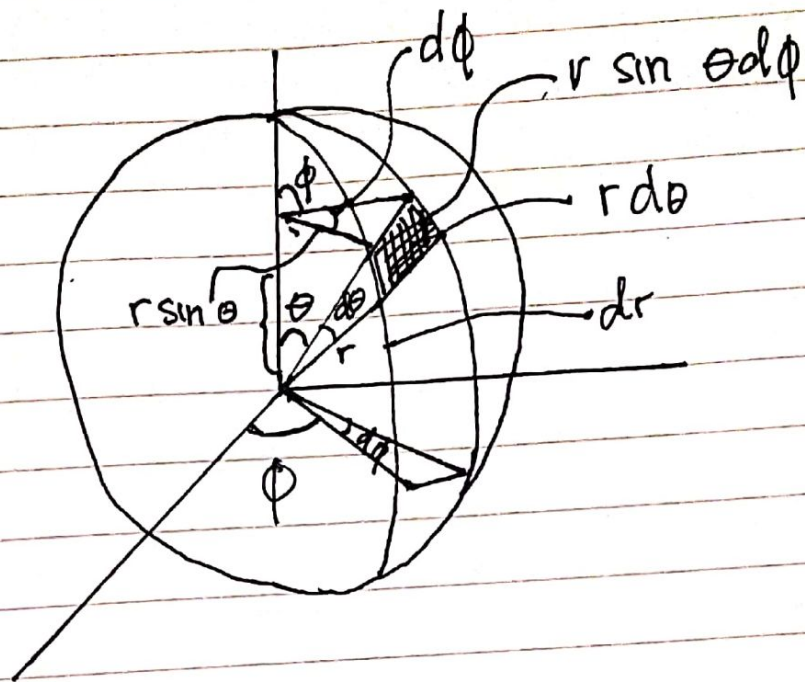
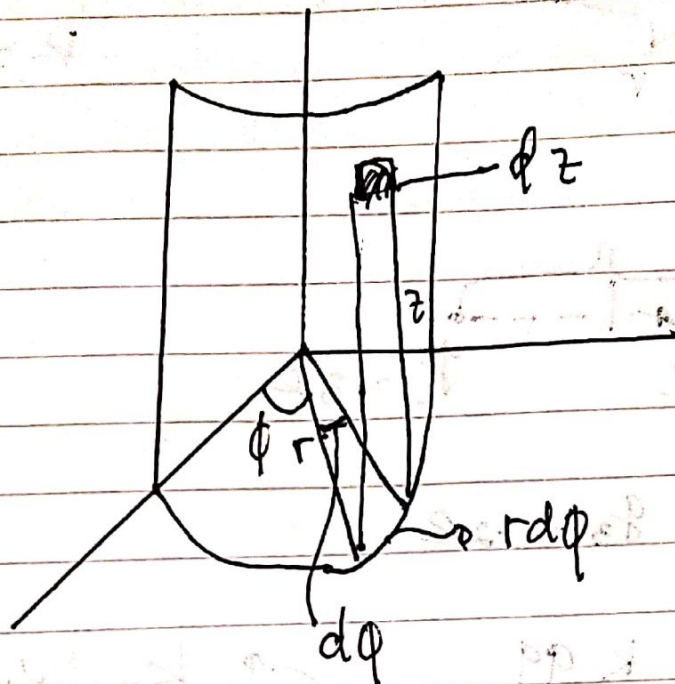






$$A = r d\phi dz$$

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

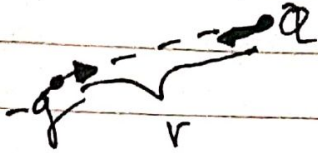
listrik statik.

$$g = \pm N\epsilon$$

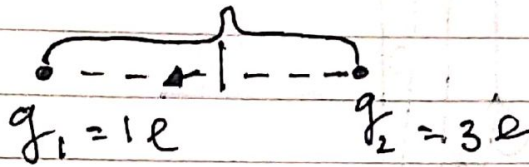
Percepatan berubah. Karena massa

$$g = \frac{Q}{r^2}$$

$$F = \frac{1}{4\pi\epsilon_0} \frac{qQ}{r^2} \hat{r}_0$$



$$k = 10$$



$$q_3 = -2e$$

$$k \frac{q_1 q_2}{(r-x)^2} = k \frac{q_1 q_3}{x^2}$$

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

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

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

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

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

$$10^2 = 3x^2 + x^2$$

$$10^2 = 4x^2$$

$$x^2 = \frac{100}{4}$$

$$x^2 = 25$$

$$x = 5$$

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

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

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

$$-4x^2 - 20x = -100$$

$$-4x^2 - 20x + 100 = 0$$

(

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

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

$$2x^2 = 200x$$

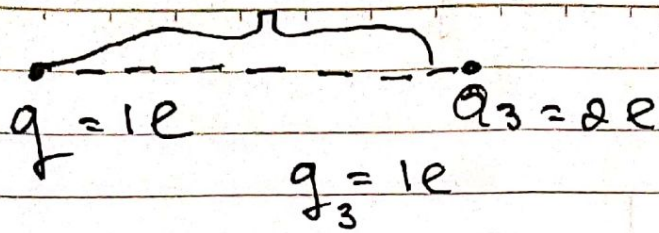
$\frac{1}{2}$



$$q = 1e$$

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

$$K = 1.$$



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

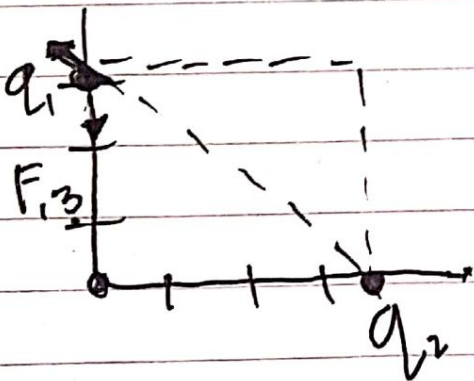
$$\frac{1}{x^2} = \frac{2}{(10+x)^2}$$

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

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

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

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



$$\hat{r}_{12} = \frac{\vec{r}_{12}}{|\vec{r}_{12}|}$$

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

$$F_{13} = k \frac{q_1 q_3}{13^2} (-\hat{j})$$

$$(0\hat{i} - 3\hat{j})$$