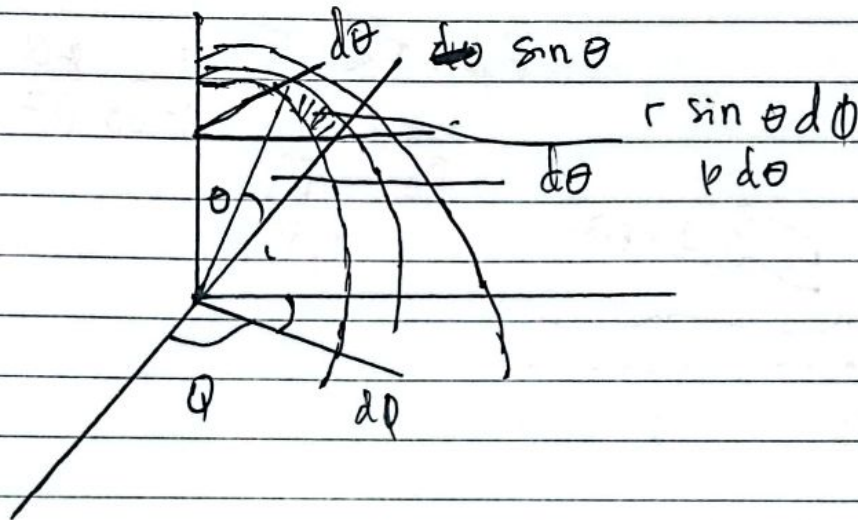


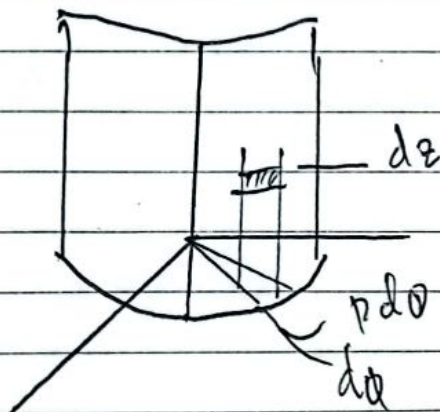
No.: Senin, 04-03-2024.

Date.:

## Kelistrikan dan Kemagnetan.



$$\begin{aligned} da &= dp \propto dl \\ &= p d\theta \cdot d \sin \theta d\phi \\ &= p^2 \sin \theta d\theta d\phi \\ dV &= p^2 \sin \theta d\theta d\phi dp \end{aligned}$$



$$\begin{aligned} A &= p d\phi dz \\ V &= p d\rho dz d\phi \end{aligned}$$

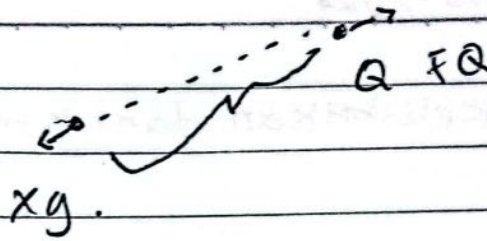
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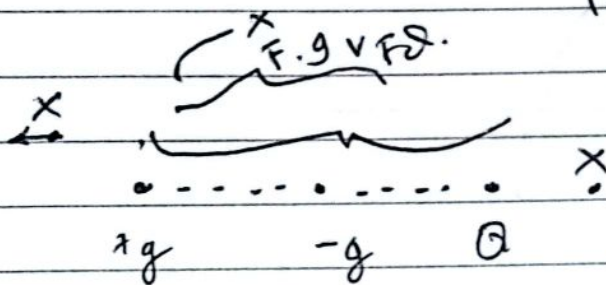
Muatan Listrik

$$q = \pm Ne$$



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

$$\vec{p}_Q = \frac{\vec{p}}{|\vec{p}|}$$



$$Q > g$$

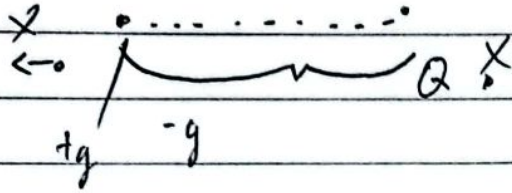
$$-g, F_g, \vec{F}_g = F_g Q$$

$$\frac{kq'gQ}{(r-x)^2} = k \frac{g \cdot g}{(x^2)}$$

$$\frac{Q}{(p^2 - 2px + x^2)} x^2 Qx^2 = 2(p^2 - 2px + x^2)$$

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$$-g_1 + g_2 \quad Q > g$$

$$\vec{F}_g = F_{1Q}$$

$$k \frac{g_1 Q}{g_2} = k \frac{g_1 g}{(x^2)}$$

$$Q \quad g \rightarrow x = ?$$

$$(x^2 - 2x + x^2) \quad x^2 \quad Q \hat{x} = g (x^2 - 3px + x^2)$$

$$1c \quad \dots \dots \dots$$

$$2c^x \quad 2c \quad 10 \text{ m} - 3c$$

$$1c$$

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

$$\vec{f}_{12} = F_{13}$$

$$k \frac{1.2}{x^2} = 1.3$$

$$(10+x)^2$$

$$= (-10) \pm \sqrt{(-10)^2 - 4(-1)(-200)}$$

$$= -10 \pm \sqrt{1600 - 200}$$

$$\frac{2}{x^2} = \frac{3}{x^2 + 20x + 100}$$

$$3x^2 = 2x^2 + 40x + 200$$

$$3x^2 - 2x^2 - 40x - 200 = 0$$

$$x^2 - 40x - 200 = 0$$

$$(x - 20)(x - 60)$$

$$= -10 + \sqrt{400}$$

$$= -10 - 20$$

$$= -20$$

$$= -40 - 20$$

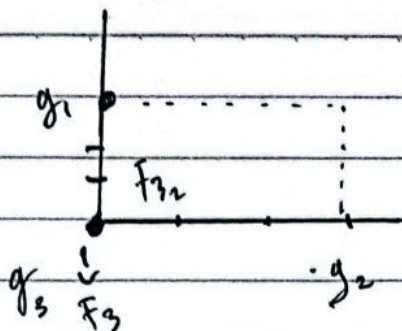
$$= -60$$

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Date. :



$$\vec{F}_{q_3} =$$

$$\vec{F} = k q_3 \cdot q_2 \frac{3\hat{i} + 0\hat{j}}{\sqrt{3^2 + 0^2}}$$

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

$$= R \sqrt{0^2 + 0^2}$$

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

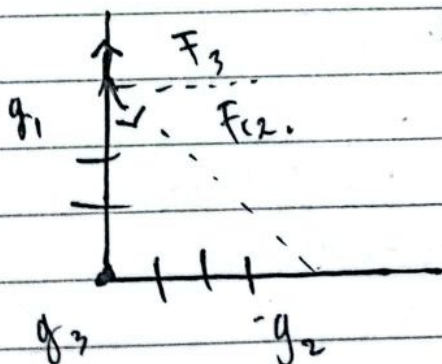
$$= k 16$$

$$\vec{F} = k q_3 \left[ \frac{y_2 \hat{i} - y_1 \hat{j}}{16} - \frac{y_1 \hat{i} - y_2 \hat{j}}{9} \right]$$

$$\vec{F}_{31} = k q_3 q_2 \hat{i}$$

$$k$$

$$|\vec{F}| = k q_3 \sqrt{\left(\frac{y_2}{16}\right)^2 + \left(\frac{y_1}{9}\right)^2}$$



$$F_{13} = k \frac{q_1 q_3}{3^2} \hat{j}$$

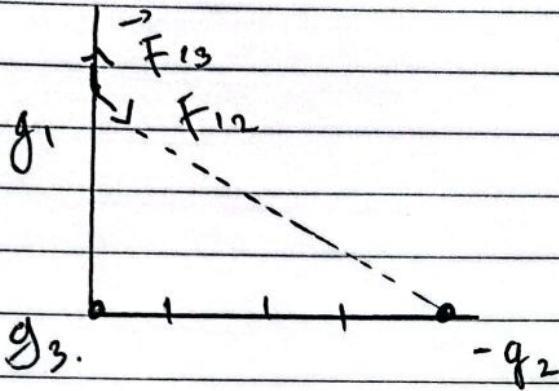
$$\vec{F}_{12} = k \frac{q_1 q_2}{5^2} (4\hat{i} - 3\hat{j})$$

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

$$\vec{F} = k q_1 \left[ \left( \frac{4q_2}{125} \right) \hat{i} + \left( \frac{q_3}{9} - \frac{3q_2}{125} \right) \hat{j} \right]$$

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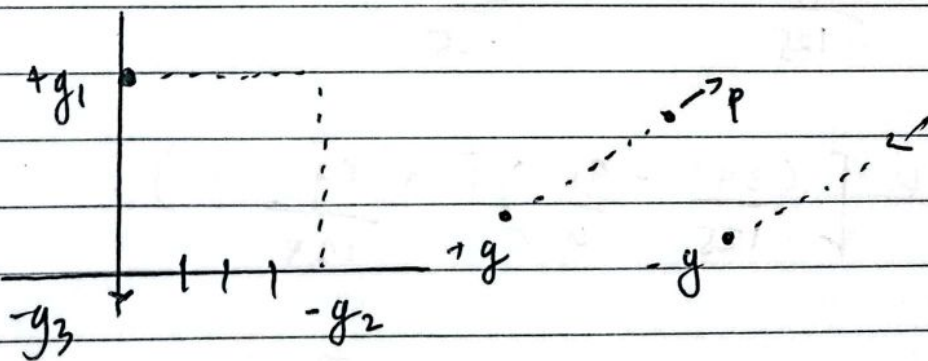


$$\vec{F}_{13} = k \frac{g_1 g_3}{3^2} \hat{j}$$

$$\vec{F}_{12} = k \frac{g_1 g_2}{5^2} (4\hat{i} - 3\hat{j})$$

$$= 4k \frac{g_1 g_2}{125} \hat{i} - 3k \frac{g_1 g_2}{125} \hat{j}$$

$$\vec{F} = k g_1 \left[ \left( \frac{4g_2}{125} \right) \hat{i} + \left( \frac{g_3}{g} - \frac{3g_2}{125} \right) \hat{j} \right]$$



$$\vec{F} \cdot g_3 = \vec{E} g_3 = \frac{F_{32}}{g_3} = k \frac{g_3 g_2}{g^3}$$

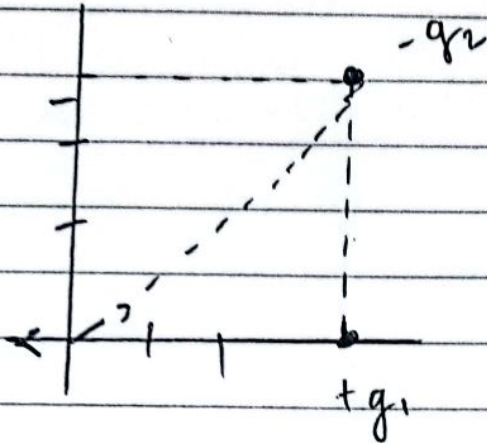
$$F = k \frac{g}{p^2}$$

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

$$= k \frac{q_1}{9} \hat{r}$$

$$\vec{E}_2 = k \frac{q_1}{5^2} (3\hat{i} + 4\hat{j})$$

$$= 3k \frac{q^2}{125} \hat{i} + 4k \frac{q^2}{125} \hat{j}$$

$$\vec{E} = k \left[ \left( \frac{3q^2}{125} - \frac{q_1}{9} \right) \hat{i} + \frac{4q_2}{125} \hat{j} \right]$$