

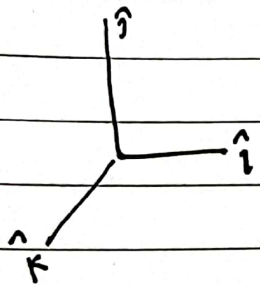
Kelistrikan & Kemagnetan

Arah yg memiliki besaran & arah tertentu.

$$\vec{x} = x_1 \hat{i}, x_2 \hat{j}, x_3 \hat{k}$$

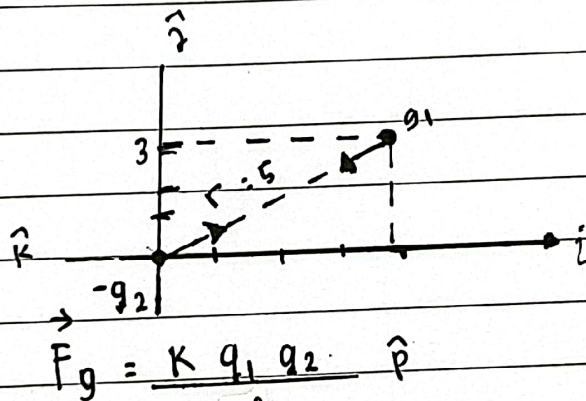
$$\vec{y} = y_1 \hat{i}, y_2 \hat{j}, y_3 \hat{k}$$

$$\vec{r} = x \hat{i}, y \hat{j}, z \hat{k}$$



$$\hat{r} = \frac{\vec{r}}{|\vec{r}|} = \frac{x \hat{i}, y \hat{j}, z \hat{k}}{\sqrt{x^2 + y^2 + z^2}}$$

$$\begin{matrix} \hat{i} \cdot \hat{i} \\ \hat{j} \cdot \hat{j} \\ \hat{k} \cdot \hat{k} \\ \hat{i} \cdot \hat{j} \end{matrix} = 1 \text{ example.}$$

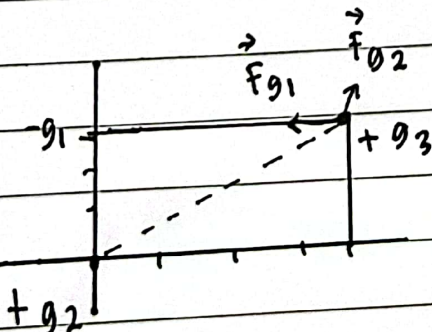


$$\vec{F}_g = \frac{K q_1 q_2}{r^2} \hat{p}$$

$$\vec{F}_g = \frac{K q_1 q_2}{r^2}$$

$$= K \frac{q_1 q_2}{5^2} (4 \hat{i} + 3 \hat{j})$$

$$K = \frac{q_1 q_2}{\sqrt{3^2 + 4^2}} (-4 \hat{i} - 3 \hat{j})$$



$$\vec{F}_{g1}, \vec{F}_{g2}$$

$$\vec{V}_1 = 4\hat{i} + 2\hat{j} + \hat{k}$$

$$\vec{V}_2 = 2\hat{i} + 3\hat{k}$$

$$\vec{a} = 3\hat{i} + 4\hat{j} - 3\hat{k}$$

$$\vec{b} = 2\hat{i} - 3\hat{j} + 2\hat{k}$$

$$\vec{V}_1 \cdot \vec{V}_2 = 8$$

$$\vec{a} \cdot \vec{a} = (3\hat{i} + 4\hat{j} - 3\hat{k}) \cdot (3\hat{i} + 4\hat{j} - 3\hat{k})$$

$$= (6-9) + (6-3)$$

$$= 9 + 16 + 9$$

$$= 34$$

$$\vec{a} \times \vec{a} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 3 & 4 & -3 \\ 3 & 4 & -3 \end{vmatrix}$$

$$= \begin{vmatrix} 3 & 4 & -3 \\ 3 & 4 & -3 \end{vmatrix}$$

$$= \begin{vmatrix} 3 & 4 & -3 \\ 2 & -3 & 2 \end{vmatrix}$$

+ kanan

- kanan

$$= \hat{i}(8-9) + \hat{j}(6+6) + \hat{k}(-9-8)$$

$$= -\hat{i} + 12\hat{j} - 17\hat{k}$$

$$\vec{a} = 4\hat{i} - 5\hat{j} + \hat{k}$$

$$\vec{b} = 2\hat{i} + 3\hat{j} + 2\hat{k}$$

$$\vec{a} \times \vec{b} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 4 & -5 & 1 \\ 2 & 3 & 2 \end{vmatrix}$$

$$= \hat{i}(-5-2) + \hat{j}(4+2) + \hat{k}(12-10)$$

$$= -7\hat{i} + 6\hat{j} + 2\hat{k}$$