No.

Date

Usaha dan Energi

$$W = -q\left[-\frac{q}{4\pi\varepsilon_0 r}\right]$$

$$= q[V]$$

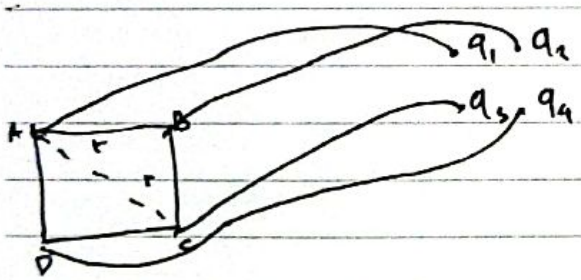
$$\boxed{W = qV}$$

$$W = \int_A^B \vec{F}.d\vec{l}$$

$$= -q\int E\,dl \quad (dl = dr)$$

$$= -q\left[\int \frac{1}{4\pi\varepsilon_0}\frac{q}{r^2}\,dr\right]$$

Contoh hal : 73



$W_1 = q_1 . V_1 = 0$

$W_2 = q_2 . V_2 = q_2\left[K\frac{q_1}{r_1}\right]$

$W_2 = q_2 . V_2$

$W_3 = q_3 V_3$

$= q_3\left[K\frac{q_1}{r_1} + K\frac{q_2}{r_2}\right]$

$= q_3[$

$$W_4 = q_4 . V_4 = q_4\left[K\frac{q_1}{r} + K\frac{q_2}{\sqrt{2}r} + K\frac{q_3}{r}\right]$$

$W_t = W_1 + W_2 + W_3 + W_4$

$= K\frac{q_1 q_2}{r} + K\frac{q_1 q_3}{r} + K\frac{q_2 q_3}{r} + \cdots$ $\Rightarrow W = \frac{1}{4\pi\varepsilon_0}\sum_{i=2}^{n}\sum_{\substack{j=1 \\ j\neq i}}^{n}\frac{q_i q_j}{r_{ij}}$

No.

Date . .

$$W = \frac{1}{2}\sum_{i=1}^{n} q_i V_i$$

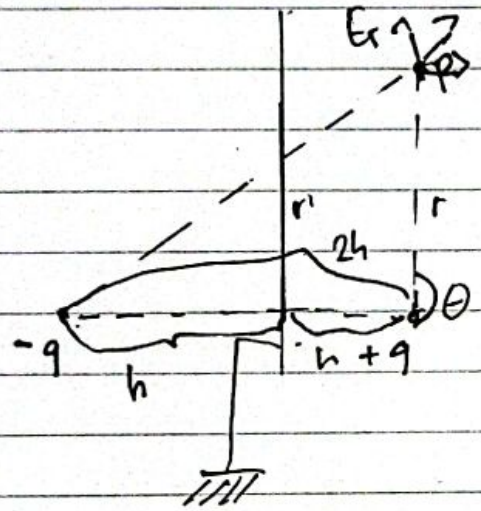
$$W = \frac{1}{2}\int \lambda V \, dl \qquad \rho = \varepsilon_0 (\nabla \cdot \vec{E})$$

$$\nabla \cdot \vec{E} = \frac{\rho}{\varepsilon_0}$$

$$W = \frac{1}{2}\int \sigma V \, ds \qquad W = \frac{\varepsilon_0}{2}\int E^2 \, d\tau$$

$$W = \frac{1}{2}\int \rho V \, d\sigma$$

- Metode bayangan



$$V = \frac{1}{4\pi\varepsilon_0}\frac{q}{r} + \frac{-q}{4\pi\varepsilon_0 r'}$$

$$V = \frac{q}{4\pi\varepsilon_0}\left[\frac{1}{r} - \frac{1}{r'}\right] \qquad r' = (r^2 + 4h^2 + 4hr\cos\theta)^{\frac{1}{2}}$$

$$E_r = \frac{dV}{dr} = K\left[\frac{1}{r} - \frac{1}{(r^2+4h^2+4hr\cos\theta)^{\frac{1}{2}}}\right]$$

$$= K\left[\frac{1}{r^2} - \frac{(r^2+4h^2+4hr\cos\theta)^{-\frac{1}{2}}(2r+4h\cos\theta)}{(r^2+4h+4hr\cos\theta)}\right]$$

No 29-09-2024

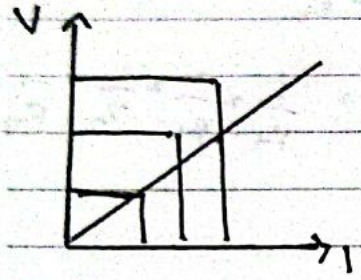
Date

Elektrodinamika

> Hukum Ohm

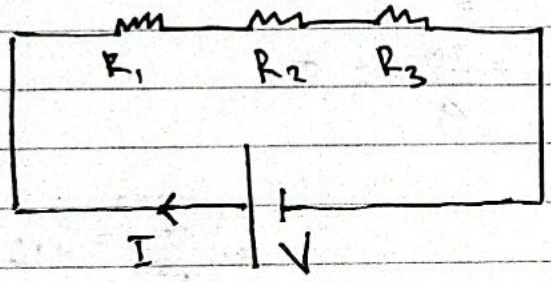
> Rangkaian Listrik

$V = I.R$ -> tetap



Arus dirangkaian seri itu sama

$I = I_{R_1} = I_{R_2} = I_{R_3}$



$I_{R_1} = \frac{V}{(R_1+R_2+R_3)}$

$= \frac{V}{R_t}$

$I_{R_2} = \frac{V}{R_t}$

$I_{R_3} = \frac{V}{R_t}$

$V_{R_1} = I.R_1$

$V_{R_1} = \frac{V}{(R_1+R_2+R_3)} . R_1$

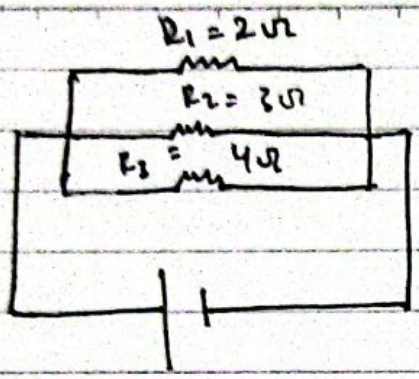
$I = \frac{V}{(R_1+R_2+R_3)}$

$V_{R_2} = \frac{V}{(R_1+R_2+R_3)} . R_2$

$V_{R_3} = \frac{V}{(R_1+R_2+R_3)} . R_3$

No.

Date



$V_{R1} = V_{R2} = V_{R3} = V$

$I_{R1} = \frac{V}{R_1}$ $\quad I = \frac{V}{R_t}$

$I_{R2} = \frac{V}{R_2}$ $\quad R_t ?\ \frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

$I_{R3} = \frac{V}{R_3}$

$\frac{1}{R_t} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$

$= \frac{1}{2\Omega} + \frac{1}{3\Omega} + \frac{1}{4\Omega}$

$= \frac{6+4+3}{12}$

$= \frac{13}{12}$

$R_t = \frac{12}{13} = 0.92$

$I_{R1} = \frac{20}{2} = 10$

$I_{R2} = \frac{20}{3} = 6.6$

$I_{R3} = \frac{20}{4} = 5$

$3 \overline{)\,20\,} = 6.6$
$\quad 18$
$\quad 20$ -

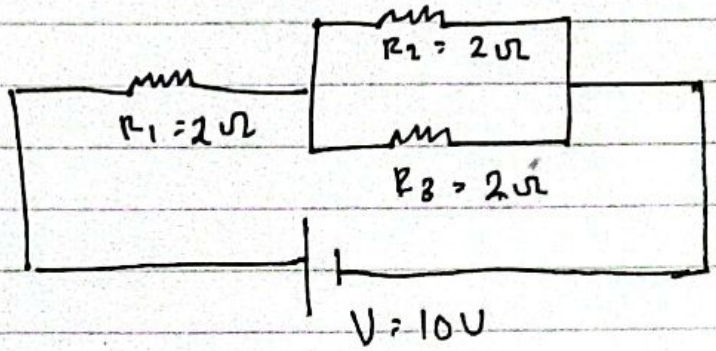
$I = \frac{V}{R_t}$

$= \frac{20}{0.92} \Rightarrow \frac{20}{\frac{12}{13}} = 20 \cdot \frac{13}{12}$

$= 21.73\ A$ $\quad = 21.67\ A$

No.

Date . .



$\frac{1}{R_{tp}} = \frac{1}{R_2} + \frac{1}{R_3}$

$= \frac{1}{2} + \frac{1}{2}$

$= 1$

$R_t = R_1 + R_{tp}$

$= 2 + 1$

$= 3$

$I_t = \frac{V}{R_t} = \frac{10}{3} = 3{,}33\ A$

$I_{R_1} = 3{,}33\ A$

$I_{R_2} = 3{,}33 \rightarrow V_{R_2} = R_2 \cdot I = 1 \cdot 33$

$= 3{,}3$ Volt

$I_{R_2} = I_{R_3} = \frac{V_{tp}}{R_2}$

$= \frac{3{,}33}{2}$

$= 1{,}66\ A$

$V_{R_1} = \frac{V}{R_t} \cdot R_1 = \frac{10}{3} \cdot 2 = 3.33.2$

$= 6.66\ V$

$L_2 = L_3 < L_1$