

No. :

Date. :

Nama : Ika Thalita Pratiwi

NPM : 2013022022

Kelas : B

1. Diketahui : Atom $^{107,9}_{47} \text{Ag}$ = 47 elektron
masa : 107,9 gram/mol

Atom $^{197}_{79} \text{Au}$ = 79 elektron
masa = 197 gram/mol

$M_{\text{cincin}} = 5 \text{ gram}$

$M_{\text{Au}} = 0,8 \text{ gram}$

Ditanya : N...?

Jawab : Massa Ag = massa cincin - massa Au
 $= 5 - 0,8$
 $= 4,2$

$N_{\text{Au}} = 0,8 \frac{6,02 \cdot 10^{23} \text{ atom/mol}}{197 \text{ gram/mol}} = 2,44 \times 10^{21} \text{ atom}$

Maka $Q = (2,44 \times 10^{21})(79)(1,60 \times 10^{-19}) = 3 \times 10^4 \text{ C}$
jadi dalam 0,8 gram emas terdapat = $3 \times 10^4 / 1,6 \cdot 10^{-19} = 1,875 \times 10^{23}$ elektron

$N_{\text{Ag}} = 4,2 \frac{6,02 \cdot 10^{23} \text{ atom/mol}}{107,9 \text{ gram/mol}} = 2,34 \times 10^{22} \text{ atom}$

maka $Q = (2,34 \times 10^{22} \text{ atom})(47 \text{ e})(1,60 \times 10^{-19} \text{ C/e})$
 $= 1,75 \times 10^6$

Jadi dalam 4,2 gram perak terdapat = $1,75 \times 10^6 / 1,6 \cdot 10^{-19} = 1 \times 10^{25}$

Jumlah elektron pada cincin = $1,75 \times 10^6 + 1 \times 10^{25}$
 $= 1,75 \times 10^{31}$

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$$\begin{aligned} Q_{\text{cincin}} &= N_{\text{total}} \times \text{jumlah elektron} \times e \\ &= 2,50 \cdot 10^{22} \times 126 \times 1,6 \cdot 10^{-19} \\ &= 5,2 \cdot 10^5 \text{ C} \end{aligned}$$

maka ~~massa~~ jumlah elektron cincin

$$\frac{5,2 \cdot 10^5 \text{ C}}{1,6 \cdot 10^{-19}} = 3,25 \cdot 10^{24} \text{ e.}$$

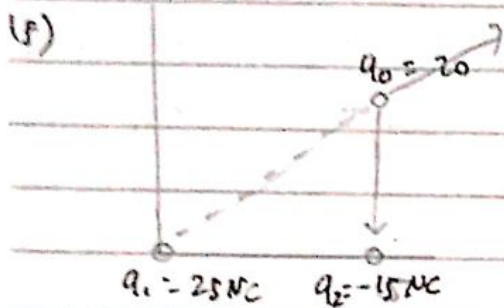
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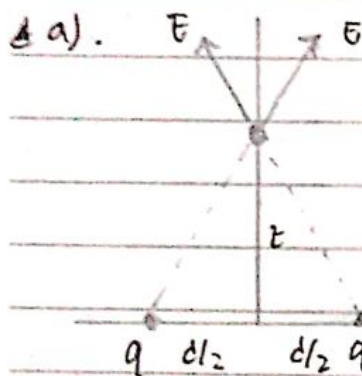
$$\vec{r} = q_0 k \left\{ \frac{q_1}{r_{01}^2} \vec{r}_{01} + \frac{q_2}{r_{02}^2} \vec{r}_{02} \right\}$$

$$\vec{r} = 10 \cdot 9 \cdot 10^9 \left\{ \frac{25}{25} \left(\frac{4i + 3j}{5} \right) + \frac{10}{100} (i) \right\}$$

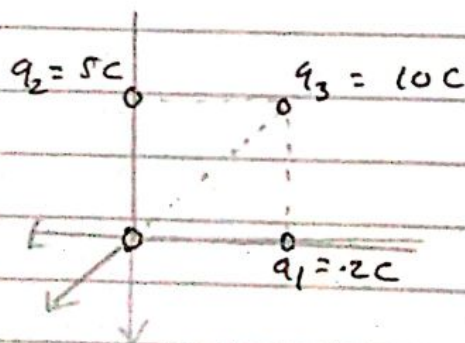
$$\vec{r} = 9 \cdot 10^{10} \left\{ \frac{100}{100} + \frac{10}{100} (i) + \frac{75}{100} (j) \right\} = \frac{9 \cdot 10^9}{10} (0,1i + 0,75j)$$



Medan listrik



b).



No.

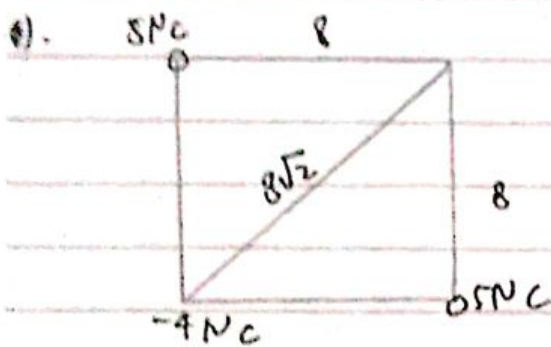
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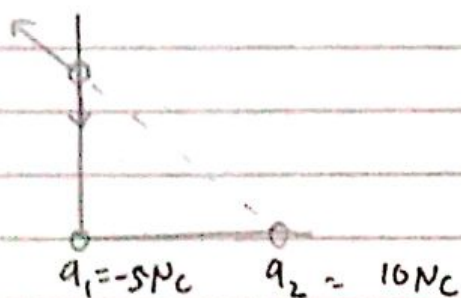
d)



Potensial listrik



2).



3.

