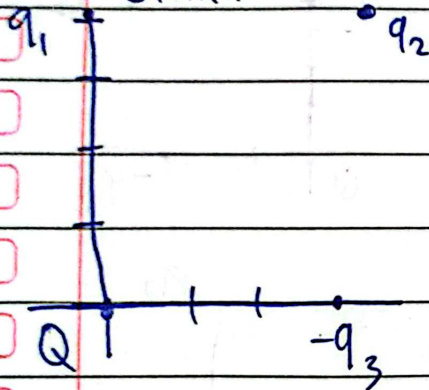
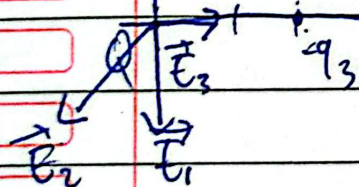


Latihan soal!



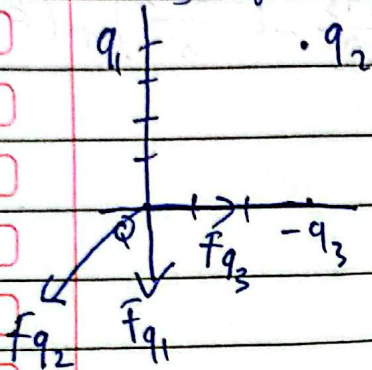
a) Medan listrik di titik (0,0)

$$\begin{aligned}
 E_p &= k \left[\frac{q_1}{4^2} (-\hat{j}) + \frac{q_2}{5^2} \left(\frac{4\hat{j} + 3\hat{i}}{5} \right) + \frac{q_3}{3^2} (\hat{i}) \right] \\
 &= k \left[\hat{i} \left(\frac{q_3}{3^2} \right) + \frac{q_2}{5^2} \left(\frac{3}{5} \right) - \hat{j} \left(\frac{q_1}{4^2} \right) + \left(\frac{q_2}{5^2} \right) \left(\frac{4}{5} \right) \right] \\
 &= k \left[\left(\frac{q_2}{5^2} \left(\frac{3}{5} \right) + \frac{q_3}{3^2} \right) \hat{i} - \hat{j} \left(\frac{q_1}{4^2} + \left(\frac{q_2}{5^2} \right) \left(\frac{4}{5} \right) \right) \right]
 \end{aligned}$$



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b) Hitung gaya listrik di titik (0,0)



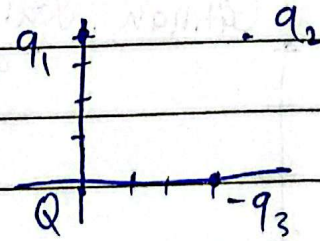
$$F_q = kQ \left(\frac{q_1}{4^2} (-1) \right) + \frac{q_2}{5^2} \left(\frac{3+4j}{5} \right) + \frac{q_3}{3^2} (1)$$

$$\vec{F}_q = kQ \left(i \left(\frac{q_3}{3^2} \right) + \frac{q_2}{5^2} \left(\frac{3}{5} \right) \right) - j \left(\frac{q_1}{4^2} + \frac{q_2}{5^2} \left(\frac{4}{5} \right) \right)$$

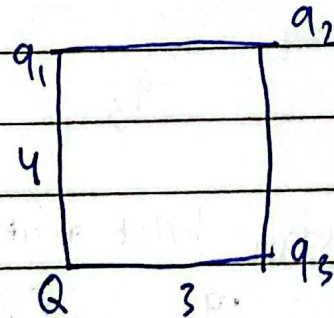
$$\vec{F}_q = kQ \left(i \left(\frac{q_3}{3^2} \left(\frac{3}{5} \right) + \frac{q_2}{5^2} \right) \right) - j \left(\frac{q_1}{4^2} + \frac{q_2}{5} \left(\frac{4}{5} \right) \right)$$

c) Hitung potensial di (0,0)

$$V_p = k \left(\frac{q_1}{4} + \frac{q_2}{5} - \frac{q_3}{3} \right)$$



d) Hitung usaha



$$W_Q = V_1 Q + V_2 Q + V_3 Q$$

$$= k \frac{q_1 Q}{4} + k \frac{q_2 Q}{5} + k \frac{q_3 Q}{3}$$