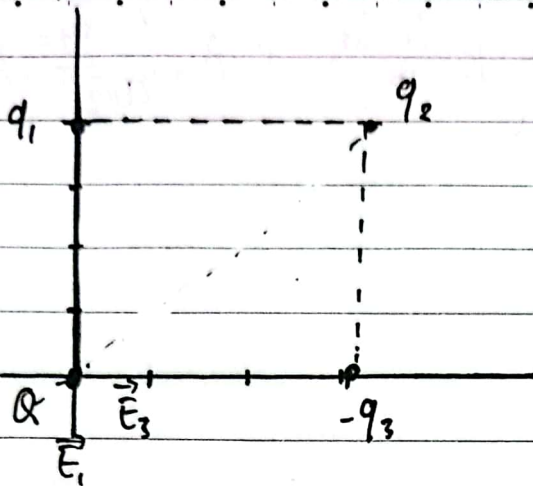


Ques 1

Vernia Saputri
2313022015.

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Date

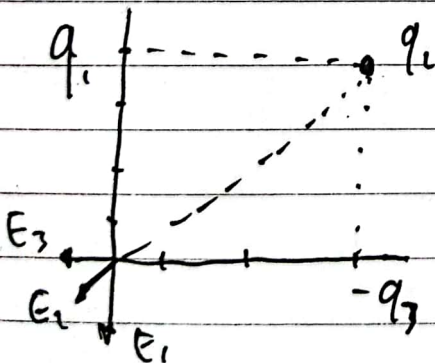


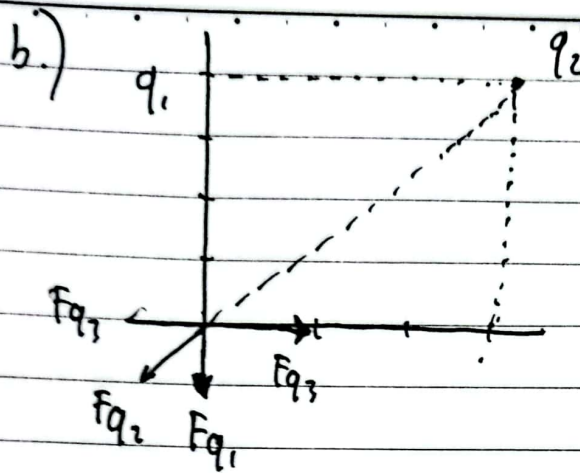
- Hitung medan listrik di titik (0,0)
- Hitung gaya listrik di titik (0,0)
- Hitung potensial listrik di titik (0,0)
- Hitung usaha Q memindahkan ke 4 muatan tersebut.

Penyelesaian :

$$a) \vec{E}_Q = k \left[\frac{q_1}{4^2} (-\hat{j}) + \frac{q_2}{5^2} \left(\frac{-3\hat{i} - 4\hat{j}}{5} \right) + \frac{q_3}{3^2} (\hat{i}) \right]$$

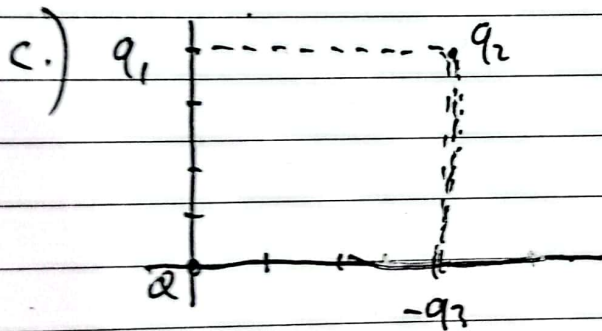
$$\vec{E}_Q = k \left[(-\hat{j}) \left[\left(\frac{q_1}{4^2} \frac{-4}{5} \right) + \frac{q_3}{3^2} \right] + \hat{i} \left[\left(\frac{q_1}{4^2} \frac{-3}{5} \right) + \frac{q_2}{5^2} \right] \right]$$



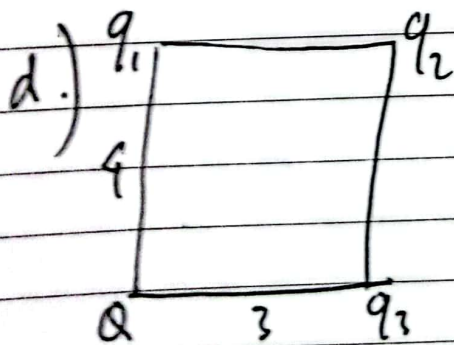


$$F_Q = kQ \left(\frac{q_1}{q_2^2} (-j) + \frac{q_2}{5^2} \left(\frac{-3i - 4j}{5} \right) + \frac{q_3}{3^2} (i) \right)$$

$$= kQ \left[i \frac{q_3}{3^2} \left(\frac{q_2}{5^2} \frac{3}{5} \right) - j \frac{q_1}{q_2^2} \left(\frac{q_2}{5^2} - \frac{4}{5} \right) \right]$$



$$V_p = k \left[\frac{q_1}{4} + \frac{q_2}{5} + \frac{q_3}{3} \right]$$



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

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